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A study of the degree attainment of native students and transfer students at independent colleges in Iowa

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A STUDY OF THE DEGREE ATTAINMENT OF NATIVE STUDENTS AND
TRANSFER STUDENTS AT INDEPENDENT COLLEGES IN IOWA

Iowa State University

Ph.D. 1986

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**A study of the degree attainment
of native students and transfer students at
independent colleges in Iowa**

by

Ronald Eugene Oswalt

**A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
DOCTOR OF PHILOSOPHY**

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**Iowa State University
Ames, Iowa**

1986

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CHAPTER I--INTRODUCTION

The impact of the community college in higher education throughout the United States was described by David Breneman in his book Financing Community Colleges: An Economic Perspective:

By most commonly accepted criteria, publicly supported community colleges are one of the greatest educational success stories of the last two decades. Although the origins of this uniquely American institution go back to the turn of the century, the greatest increase in community colleges' growth and public acceptance occurred during the 1960's and early 1970's. For several years during this period, an average of one new community college per week was opened. In 1960, 315 public two-year colleges enrolled 392,000 students, 11 per cent of the total higher education enrollment; by 1979, 926 public two-year colleges enrolled 4,057,000 students, 35 per cent of the total. The increase in public community college enrollments from 1960 to 1979 was a striking 930 per cent, compared with 220 per cent for all higher education. Since 1975, approximately half of all first-time college students have enrolled in community colleges, which are also serving increasing numbers of older part-time students. By these measures, community colleges have become a large and important part of United States higher education (Breneman and Nelson 1981, page 1).

Management methods used by administrators and faculty to deal with community college problems and the specific problem of the transfer function will effect the future of community colleges throughout the next century.

The function of providing a smooth and equitable transfer of students from college to college, is a major concern for both the community colleges and the four-year colleges. Future planning for the transfer of students between the two-year and four-year colleges may include communication of staff, course by course cataloguing, and coordination of curriculum development. These efforts provide a

smooth transition and increased retention for the transfer student. The National Center for Educational Statistics data reports 30 per cent of all high school seniors planned to attend a two-year college prior to transferring to a four-year college (Peterson 1982). A report published in the Chronicle of Higher Education indicated that in the month of June 1980, 54.7 per cent of the total new freshman students enrolled in all institutions of higher education chose the community college, a figure representing 1,422,157 community college freshman. The state of Iowa has continued to enroll a larger number of students in area community colleges since their inception in 1966. The Iowa Department of Public Instruction (DPI) reported a total enrollment of 17,880 students at the area community colleges in the fall term of 1985. Data from the DPI in Table I show the trend of increasing numbers of college students enrolled in area community colleges from 1965 through 1981 (DPI 1985).

Increased numbers of students attending the community college result in larger numbers of student matriculating into four year baccalaureate programs. History indicates that one of the original purposes of the community college movement was to relieve the university of freshman and sophomore studies (Eells 1943). Henry Tappan, President of the University of Michigan, as early as 1851, called for an institution that would take students beyond the point of entry into university studies in the professions and higher learning. In 1896, William Folwell, President of the University of Minnesota, echoed President Tappan's

TABLE I

Iowa Community College Enrollment Trends 1965-1981

State of Iowa

DEPARTMENT OF PUBLIC INSTRUCTION

Area Schools Division

Grimes State Office Building

Des Moines, Iowa 50319

ENROLLMENTS OF AREA COLLEGES

(Excludes registrations in adult education divisions)

Fall	CAREER EDUCATION		COLLEGE PARALLEL		OTHER		TOTALS		All
Enrollments	F-T	P-T	F-T	P-T	F-T	P-T	F-T	P-T	Students
1965	825	14	7444	827	-	-	8269	841	9110
1966	2281	138	9260	740	-	-	11541	878	12419
1967	3979	394	9688	1350	-	-	13667	1744	15411
1968	5798	137	9575	1396	-	-	15373	1533	16906
1969	6890	171	9941	1425	-	-	16831	1596	18427
1970	8343	262	9833	2132	12	27	18188	2421	20609
1971	8904	230	9320	2294	62	34	18286	2558	20844
1972	11511	522	8184	3045	289	39	19984	3606	23590
1973	12782	783	7848	3336	322	381	20952	4500	25452
1974	13152	2127	7452	3946	166	149	20770	6222	26992
1975	15607	2758	8681	5552	36	158	24324	8468	32792
1976	15814	3110	7932	5267	16	225	23762	8602	32364
1977	15210	3246	7678	6051	-	292	22888	9589	32477
1978	14733	3781	7503	6208	101	534	22337	10523	32860
1979	14612	3643	7993	7266	5	532	22610	11441	34051
1980	15695	4073	9219	7891	58	933	24972	12897	37869
1981	15777	3440	9579	8936	60	1108	25416	13484	38900

sentiments in carrying on the movement of the freshman and sophomore years of college being put in a separate institution (Cohen and Brawer 1981-82).

By 1896, William Rainey Harper had established a junior college at the University of Chicago, later these colleges were referred to as a community college. Although a two-year degree was granted in Great Britain almost 35 years before its introduction at the University of Chicago, in the United States, the division of freshman and sophomore years from the junior and senior years is attributed to Harper (Eells 1943).

William Rainey Harper of the University of Chicago, Edmond J. James, of the University of Illinois, and Stanford's President, David Starr Jordan, all cited the experience of European universities and secondary schools in which the curricula, students, and instructional forms had the effect of reserving to the universities the higher order scholarship while relegating to the lower schools those functions designed to take students to their nineteenth or twentieth year (Cohen and Brawer 1982, page 142).

Harper's model, introduced at the University of Chicago, helped influence Joliet, Illinois township school to establish Joliet Junior College in 1901. Joliet Junior College is the oldest public junior college still in existence.

In July 1946, President Harry Truman created the President's Commission on Higher Education which had a significant impact on the growth of the community colleges. The Commission in its report entitled "Higher Education for American Democracy" proposed that the community college provide the first two years of a four-year degree or professional study, two-year vocational-technical programs, and adult education.

In retrospect, community colleges served their original purposes and experienced considerable growth. With this growth, college officials found the responsibility of articulating transfer of community college credit into baccalaureate degree programs compounded by the number of community college students eligible to transfer (Kintzer 1971).

Uncertain economic conditions and fluctuations in student enrollments create a need and opportunity for greater communication and cooperation between community colleges and proprietary institutions (Peterson 1982).

In a 1965 survey of 65 California junior colleges, Peterson reported the "two-year and four-year articulation" as the ninth most critical problem facing community colleges (Peterson 1982). This problem was raised from ineffective transfer policies and processes which translate into disadvantages for the transfer students. Colleges and universities have failed to address themselves in meaningful and equitable ways to the need of students transferring from one institution to another (Armeno 1978). Marvin J. Higbee wrote in a 1973 Community and Junior College Journal article entitled "An End to the Transfer Hurdle".

The junior college transfer student has long been perplexed with the problem of moving from the junior college to the senior college without some loss of credit, money, time, and emotional and physical energy (page 42).

Studies reported in review of the literature chapter of this study indicate differing degrees of effectiveness in transfer of credits to a four-year college or university; however, the extent that specifically independent colleges in Iowa have articulated community college credits into their programs has not been examined.

The ability of the community college student to matriculate into four-year colleges with equal credit given for courses completed when compared to native or other transfers is the most common concern of students and parents of students who consider taking credits from a community college toward a baccalaureate degree. As large numbers of beginning college students choose to enter the community college, what chance do these students have of graduating from a independent college in Iowa without taking additional credits?

Successful articulation of credits from the community college to the four-year college becomes of greater importance to the community college if they are to remain an alternative to students beginning immediately at the four-year college (Peterson 1982).

The number of students enrolling in Iowa public community colleges has increased by 42,110 since 1965 (DPI 1985). Dwindling numbers of high school students graduating in Iowa combined with increased numbers of students entering the community college has presented the independent colleges in Iowa an opportunity.

The opportunity for independent colleges to deal with articulation on a casual verbal basis is no longer feasible, and thus policies for the articulation of incoming credit to colleges and universities have been established. Furthermore, agreements and relationships dealing with the community college transfer student will provide a meaningful matriculation of these students into baccalaureate degree programs (Peterson 1982).

Statement of the Problem

The problem, as set forth in this research, concerns the effect of transferring credits on students graduating from independent colleges in Iowa. Specifically, the research: a) measured if any the effect on total hours at graduation of transferring more than 30 semester

hours from an Iowa community college, a community college outside of Iowa, or another four-year college when compared to students who did not transfer more than 30 semester hours into the selected independent colleges; b) showed a comparison of the differences between these four groups when measured by total number of semester hours required to graduate at each of the selected colleges; and c) illustrated a measurement, if any, of the differences in persistence of the four categories of students between the selected four-year colleges.

Scope

This study investigated the total number of semester hours required for students to graduate from selected independent colleges in Iowa in 1984. The graduates of these selected colleges were divided into four categories:

1. Those students who graduated from the selected colleges and who transferred less than 30 semester hours into the college (native).
2. Those graduates who transferred 30 semester hours or more into the four-year college, from a community college in Iowa (Iowa community college transfer).
3. Those graduates who transferred 30 semester hours or more from a community college outside of Iowa (out-of-state community college transfer).

4. Those graduates who transferred 30 or more semester hours to the selected four-year colleges from another four-year college (four-year college transfer).

These categories of graduates were analyzed to measure what significance transferring credits into the independent colleges had upon total number of hours taken to complete the baccalaureate degree at that college.

Purpose of the Study

The purpose of the study was to determine to what extent, if any, degree attainment varies between: a) those students who are native to the college; b) those students who transferred 30 or more semester hours into the selected four-year college from an Iowa community college; c) those students who transferred 30 or more semester hours into the selected four-year colleges from a community college outside Iowa; and d) those students who transferred 30 or more semester hours into the selected four-year college from another four-year college. Specific research questions include:

1. Are there differences in total hours accumulated between native students who graduated from selected independent colleges in Iowa and those students who transferred 30 or more semester hours toward graduation?

- a. Do differences exist between students who did not transfer more than 30 semester hours (native) and students who transferred 30 or more semester hours from an Iowa community college (Iowa community college transfer) when measured by total number of semester hours taken to graduate?
 - b. Do differences exist between students who did not transfer more than 30 semester hours (native) and students who transferred 30 or more semester hours from a community college outside the state of Iowa (out-of-state community college transfer) when measured by total number of semester hours taken to graduate?
 - c. Do differences exist between students who did not transfer more than 30 semester hours (native) and students who transferred 30 or more semester hours from another four-year college (four-year college transfer) when measured by total number of semester hours taken to graduate?
2. Do differences exist between Iowa community college transfers, other community college transfers and four-year college transfers identified in question one when compared to one another?
 3. Do differences exist between colleges when students are divided into the four categories identified?

Delimitations

1. The results of this study are limited to four selected independent colleges.
2. The findings of this study do not attempt to measure other factors influencing persistence.
3. The study is limited to students who graduated from the selected independent colleges in 1984.
4. The research investigation was delimited to a study of specific factors which effect the degree attainment of students transferring to a four-year independent college in Iowa.

Profile of Participant Colleges

The following descriptions as described in the College Blue Book are provided as background on the participant colleges. These profiles provide a description, an overview of entrance requirements, and a summary of the collegiate environment of the selected colleges.

Independent College Profiles

College I

Description - This Independently supported four-year college had an annual enrollment of 461 men and 602 women full-time, 66 men and 205 women part-time. The school offered a wide variety of transfer programs. It operated on the 4-4-1 curriculum calendar system and was affiliated with the Lutheran Church of America. Two summer sessions were available. It was founded in 1896 and accredited by the North Central Association of Colleges and Schools and the State of Iowa.

The college offered the Associate of Arts, Bachelor of Arts, and Bachelor of Science Nursing degrees. The American College Test (ACT) is required and rolling admission, early admission and advanced placement plans have been available.

Collegiate Environment - The campus is located on 26 acres and consists of eleven buildings including a library of over 63,000 volumes and dormitory facilities for 116 men and 130 women. Ninety-five per cent of those applying for admission are accepted including mid-year students. Fifty-nine per cent of the student day population receives financial aid in an average amount of over \$1,800 per student.

College II

Description - An independently supported liberal arts college operates on 4-1-4 system with two summer sessions. The college enrolled 1,058 men and women full-time and 390 part-time in 1984. A faculty of 84 full-time and 33 part-time provide a faculty-student ratio of 1 to 13. Preparation for the state teaching certificate is provided. An off-campus program includes internship programs abroad, and/or work-service opportunities of one term working in a professional capacity. Pre-college and freshman programs for the educationally disadvantaged are available. An academic cooperative plan of two years at the college and two years at another university are also offered. The two-two program offers Bachelor of Science degree opportunities in nursing, clinical psychology, medical technology, physical therapy, occupational therapy, speech pathology and social

work. The college is accredited by the North Central Association of Colleges and Schools, the American Chemical Society, and the National Association of Schools of Music. The college is affiliated with the United Presbyterian Church, and was approved by the Synod of Lakes and Prairies, the Church Board of Christian Education, and the General Assembly of the Presbyterian Church.

Entrance Requirements - Admittance to College II requires an accredited high school graduation or the equivalent, plus SAT or ACT test taken. Under certain circumstances, non-high school graduates are accepted. Early admission, early decision, rolling admission, delayed admission and advanced placement plans are available options to prospective students.

Collegiate Environment - Seventy-seven per cent of the students who apply for admission are accepted. Financial assistance provides 74 per cent of the current students some form of aid. Dormitory facilities accommodate 420 men and 369 women. The library contains 172,000 volumes and subscribes to 560 periodicals.

College III

Description - This independent, comprehensive university is accredited by the North Central Association of Colleges and Schools and by the respective professional associations as follows: American Association of Collegiate Schools of Business, American Chemical Society, American Council on Education for Journalism, American Bar Association and Association of American Law Schools, National Association of Schools of Music, American Council on Pharmaceutical

Education, and National Council for Accreditation of Teacher Education. The university operated on the semester system with two summer sessions and is composed of nine individual colleges and schools which include the College of Business Administration, College of Education, College of Fine Arts, School of Journalism and Mass Communication, College of Pharmacy, the Law School, a Graduate school, and the College of Continuing Education. In addition to granting the baccalaureate degree, the university offers Master's degree programs in liberal arts, business, fine arts, education, and journalism. Post graduate offerings include the Specialist in Education, Education Doctorate, and Doctor of Arts in English degrees. The student body, representing every section of the United States and numerous foreign countries, consisted of 3,095 men and 3,397 women in 1984. A faculty of 307 gave a faculty-student ratio of 1 to 17. In addition to academic subjects, the school offers extensive instrumental and vocal music programs, inter-collegiate and intramural athletics.

Entrance Requirements - College III requires an accredited high school graduation or the equivalent with a rank in the upper half of the high school class and completion of the ACT or SAT. Approximately one-fourth of the entering freshman class are in the top ten per cent of their high school class, and about half are in the top 25 per cent.

Collegiate Environment - The school occupies a 50 acre site and includes a library of more than 320,000 titles and pamphlets and 370,000 microforms. Living accommodations are provided in residence halls for 888 men and 1,021 women. Sixty per cent of the students

applying for admission are accepted. Financial aid is available for economically handicapped students. There were a total of 2,697 scholarships available, and of that number, 575 were for freshman, 200 were for athletes.

College IV

Description - A privately-supported liberal arts school that has an average enrollment of 698 men and 705 women. It is fully accredited by the North Central Association of Colleges and Schools and by the National Council for Accreditation of Teacher Education and offers preparation for the state teaching certificate. The college awards credit on a semester system, with two summer sessions offered. The interim term is used for innovative and conventional educational experience including internships and travel programs. The college is affiliated with the United Presbyterian Church; however, members of the board of trustees, faculty, and the student body belong to many different faiths. The college employed a faculty of 55 full-time and 15 part-time in 1984. The faculty-student ratio was 1 to 17.

Entrance Requirements - College IV requires for admittance an accredited high school graduation or equivalent with rank in the upper two thirds of the class and the completion of the ACT or SAT test. Admission planning includes early admission, early decision, rolling admission, delayed admission, and advanced placement.

Collegiate Environment - The 40-acre campus includes 13 buildings. Completed in 1966, a new library houses 84,000 volumes. The new science center has a greenhouse and a live-animal room in

addition to a glass-walled ecology laboratory. Housing is available for 400 men and 316 women. Ninety-two per cent of the students applying for admission are accepted. The average standing of the 1984 freshman class who is 34 per cent in the top quarter, 69 per cent in the top half; the average ACT was 22.1. Financial aid is available and approximately 90 per cent of the current students receive some form of assistance.

Definition of Terms

1. COMMUNITY COLLEGE - A public-supported two year, post secondary institution.
2. SENIOR COLLEGE - A baccalaureate degree granting institution where students may transfer credit from a community college or other four-year institutions.
3. ARTICULATION - The ability of colleges to define specifically the transfer of courses from one college to another.
4. ARTICULATION POLICY - A written rule agreed upon and followed in the transfer of courses from one college to another. Synonym: transfer policy.
5. NATIVE STUDENT - A student who either began their post-secondary study or transferred less than 30 hours of study into the college that awarded the baccalaureate degree.
6. TRANSFER STUDENT - A student who matriculated to a senior college from a college other than the college awarding the baccalaureate degree.

7. IOWA COMMUNITY COLLEGE TRANSFER - A student who transferred at least 30 semester hours from an Iowa community college into a selected independent college who awarded them the baccalaureate degree.
8. OTHER COMMUNITY COLLEGE TRANSFER - A student who transferred at least 30 semester hours from a community college outside the state of Iowa into the selected independent college who awarded them the baccalaureate degree.
9. PERFORMANCE - The comparative grade point averages earned by transfer students (Richardson and Doucette 1980).
10. PERSISTENCE - The percentage of the original population still enrolled or having graduated during specified semesters (Richardson and Doucette 1980).
11. PROGRESS - The number of hours earned or semesters enrolled in a specified time by transfer students (Richardson and Doucette 1980).
12. DEGREE ATTAINMENT - The number of students graduating without penalty of additional hours.
13. INDEPENDENT COLLEGE - A college that is not financially supported or governed by the state. Synonym: private college
14. CUMULATIVE GRADE POINT AVERAGE - The grade point average of total credits earned.

15. TRANSFER GRADE POINT AVERAGE - The grade point average of total credits earned by transfer students at the college they are transferring from.
16. VOCATIONAL COURSE CREDITS - Credits earned in community college vocational curriculums designed to provide immediate employment upon completion.
17. COLLEGE TRANSFER CREDIT - Credits earned in college curriculums designed to apply toward a baccalaureate degree.

CHAPTER II--REVIEW OF RELATED LITERATURE

This chapter contains a review of selected literature related to articulation practices of two-year and four-year colleges. Articulation practices before the 1960s consisted of verbal agreements with little documentation. Because of increased pressure from the two-year colleges and enrollment declines at many of the four-year colleges, there has been an improvement in the development of articulation practices (Peterson 1982).

Studies Relating to Performance, Persistence,
Progress and Degree Attainment

The studies reviewed in this section of the literature were those that centered upon performance, persistence, progress and degree attainment. Richardson and Doucette (1980), in a study of performance, persistence, progress and degree attainment of community college transfers in Arizona's public universities defined these terms as:

Persistence - The rate transfer students continue in attendance compared to native students.

Performance - The degree to which transfer students attain cumulative grade point averages at four-year colleges comparable to the grade point averages they attained at the community colleges and comparable to the cumulative grade point averages earned by four-year college native students.

Progress - The degree to which transfer students earn credit hours toward graduation compared to students' native to the four-year colleges.

Degree Attainment - The rate to which transfer students graduate compared to four-year college native students. (Richardson and Doucette 1980)

The study by Richardson and Doucette (1980) found that in areas of progress and degree attainment differences existed between the success of community college transfer students and students native to the Arizona public universities. However, they found that if only comparing transfers with two years of community college, or transfers who attained high school ranks similar to native students, little or no difference existed in progress or degree attainment. These differences may be due to variables other than community college attendance (Giddings 1985).

A study conducted by Knoell and Medsker (1964), centered upon transfer students and post-transfer performance. The study involved 10,000 students, 345 two-year institutions in which the students entered as freshmen, and a diverse group of 43 senior colleges and universities to which the students transferred. The major purpose of this study was to examine the performance of junior college students following transfer. Findings indicated that transfer students were satisfied with their experience in junior college and encountered few serious problems in the four-year institutions. Medsker estimated that at least 75 per cent of the group studied would receive their degrees eventually. This estimate included some drop-outs or students who transferred to another institution who were expected to persist in obtaining a degree and was not a measure of degree attainment. The

record of the students who transferred with junior standing was better than students who transferred with lower class standing, in terms of both persistence and on-time completion of program.

Academic success at the transfer institution was more highly related to performance after transfer than was high school performance; however, the study also found that a student's probability of success after transfer depended heavily upon their choice of a four-year institution in the particular state where they attended junior college. Students with minimally satisfactory grades in junior college were more likely to be successful in colleges placing major emphasis on the preparation of teachers than in other types of institutions.

Similar findings were obtained in a study conducted at the University of Oklahoma by Kelley in 1970. Using samples of 600 transfer students and a comparable population of native students, they found that the type of college students transferred from appeared to make a difference in their academic grades and persistency to graduation. Further findings indicated that transfer students did not perform as well academically as non-transfer students, and the transfer students' major field of study appeared to influence their academic success and persistence to graduation.

In regard to academic success, Young (1962) found the average transfer student compared favorably to the native student at Pennsylvania State University. Similarly, Johnson (1965) in his report concerning the scholastic achievements of junior college

transfer students at the University of Missouri, indicated that the junior college transfer student compared favorably to native students. He further concluded that the attained cumulative and last semester grade point average were equal.

Mann (1963) compared academic success and persistence toward graduation of junior college transfer students, senior college transfer students, and native students at the University of Oklahoma. He found a significant difference in the four-year grade point average of the three groups. Many of the transfers left school for reasons other than academic deficiency. He concluded that the junior college transfers were prepared to succeed academically at the University of Oklahoma.

A very different finding was the result of a study by Place (1961) at the University of California. Place found that junior college transfers entered the California State Colleges Business Divisions with higher grade point averages than their native counterparts. However, the junior college transfers were less successful in upper division work. Data indicated that their grades tended to lower during the first year after transfer; yet they did improve during the second year. Place concluded neither the size of the junior college attended, prerequisite courses taken, or preparation curriculum influenced the academic success of the transfer student.

Similarly, the findings in a study by Hanson (1968) at the University of Oregon indicated that transfer students did not perform as well during the first year or any other year when compared to the native student. Hanson's research did not show, however, any significant difference in performance by students transferring from other four-year colleges.

Anderson (1977) reported a difference between the performance of community college transfers, four-year transfers and native students at the University of Illinois. Findings indicated that community college students entered with a grade point average similar to native students at the end of two years, but then achieved lower grade point averages at the transfer institutions.

Studies of California community college transfers by Gold (1981) and Kissler (1981) indicated that transfers took longer to graduate and achieved at a lower level when compared to the native students at California universities. In another study of the California university system, Slark and Bateman (1981) found that the grade point average of students from Santa Ana College transferring to the university system was slightly higher than the average for other transfers. They also noted in their findings that community college transfer students who were eligible for the university based on high school achievements but did not immediately attend, performed as well as native students.

A comparison study of 731 community college transfers and 358 four-year college transfers with 1,808 native students at the University of Washington was conducted by Hodgson and Dickerson (1974). Results indicated that native students persisted at a better rate and achieved a significantly higher grade point average than either of the transfer groups.

Klitzke (1981), in a study of 231 junior college students transferring to Denver University and the University of Colorado, compared transfer students who attended junior college in Colorado for at least six quarters with native students on the basis of major, sex, and number of hours toward graduation. Klitzke found a significant difference between these groups in their persistence toward graduation. Ninety per cent of the natives graduated compared to seventy-eight per cent of the transfers.

A survey of studies involving the performance of junior college transfer students at four-year institutions was conducted by Hill in 1965. He stated that in most cases the transfer student does not do as well academically after they transfer. The transfer student's grade point average decreases and is never regained even though they generally take longer to finish a degree than native students.

A more recent study conducted by Phlegar, Andrew and McLaughlin (1981) investigated the academic performance of 361 community college students who transferred to a comprehensive university. Predictor variables included personal, environmental, demographic and pre-transfer academic measures. The courses chosen at the community

college was found to be an important factor in curriculum success at the senior institution.

Kirby (1980) reviewed the academic performance of 489 students who had either graduated from or attended Oakton Community College between 1971 and 1979. Findings from this study revealed as of 1980, twenty per cent of the students were either successful in obtaining the bachelor's degree or were still enrolled.

The studies reviewed in this section of the literature centered upon performance, persistence, and progress as well as degree attainment. Knoell and Medsker (1964), Richardson and Doucette (1980), Mann (1963), Kelley (1970), Gold and Kissler (1981), Klitzke (1981), Hill (1965), and Kirby (1980), provided research that investigated degree attainment. Other studies in this section investigated persistence and performance that provided related information about comparisons of transfer students with students native to four-year colleges (Young 1962, Johnson 1965, Place 1961, Hanson 1968, Slark and Bateman 1981, Hodgson and Dickerson 1974, Phlegar, Andrew and McLaughlin 1980). In all cases, the transfer student was the central theme of the research.

Iowa Studies Relating to Transfer Students

Studies of transfer students in Iowa focus on differences in grade point averages of native and other transfers in an effort to provide predictive information about transfer student success. These studies primarily deal with students who transfer to one or all three of the state

universities. Only Ingram (1967) researched transfers to Drake University. None of the studies review graduates and measured differences in total hours completed at the point of graduation. The studies of Iowa colleges and universities conclusively indicate that grade point average of the transfer is the best predictor of success at the transfer college.

As early as 1955, before the state community college system was adopted, Lagomarcino (1955) studied 257 students who had graduated from one of the 14 Iowa community colleges in 1951 and transferred to the three state universities. Lagomarcino predicted the probability of graduation of these students at the three state universities, concluding a student with a 2.0 community college grade point average would have a 70 percent chance of graduating at Iowa State Teachers College (now the University of Northern Iowa), a 60 percent chance of graduating at the University of Iowa and a 53 percent chance at Iowa State College (now Iowa State University). As the grade point average went up, so did the students' chance of graduation.

Casey (1963) conducted a study similar to Lagomarcino's and also concluded the best predictor for forecasting graduation at one of the three state universities in Iowa was the grade point average attained at the community college. This study also concluded, as did the Lagomarcino study, that as the grade point average from the community college went up, so did the chances for the transferee to graduate from one of the three universities. Casey's study intern agreed that there was variance in individual achievement depending on which of the three state universities the transferee attended.

Ingram (1967) studied transfer students who entered Drake University between the fall of 1961 and the fall of 1964 inclusive. Four categories of transfers were identified: 1) Iowa public college transfers, 2) out-of-Iowa college transfers, 3) liberal arts college transfers, and 4) other major university transfers. These transfer groups compared to students native to Drake, using the analysis of variance procedure. The study concluded native students attained a higher grade point average at graduation than any of the four transfer groups. Transfer students from Iowa public colleges (which include Iowa community college transfers) and other major universities out performed the two categories with out-of-Iowa college transfers performing with lower success rates. Ingram also concluded as Lagomarcino (1955) and Casey (1963) did: The pre-transfer grade point average was the best predictor of post-transfer grade point average and successful graduation. A delimitation of Ingram's study showed the transfer grade point average at Drake University during this period was not carried toward the grade point average at graduation. Transfer students were given credit for transfer courses, not grade points, therefore, native students accumulated grade points longer than did transferees.

Echternacht (1968) indicated in a single institution study of Iowa State University students, that transfers did not do as well as native students within the colleges of agriculture and engineering at Iowa State University when measured by grade point average; however, no difference between the grade point averages of transferees and

native students were identified in the college of Home Economics and the College of Science and Humanities.

Another more recent single institution study within a college at Iowa State University was completed by Hildebrandt (1984). She found that no difference occurred between transfer students and native students in the college of Forestry at Iowa State University in terms of performance. Hildebrandt also found no significant differences between the mean grade point average of all course work and the mean grade point average of selected forestry course work for these two groups.

Langston (1971) in a single institution study at the University of Iowa, agreed grade point average was the best predictor for success when compared to first session University of Iowa grade point average. The composite ACT test provided the second best prediction factor. He further found significant differences existed between the community colleges involved in transfer processes when measured by first term grade point average and mean ACT composite.

In another 1971 study Cramer (1971) measured predictors of success for 200 Iowa Central Community College students to determine what could best be used. Cramer compared community college students who transferred and graduated, students who transferred and withdrew and students who did not transfer. Although the study did not indicate past transfer success, significant differences were found in academic predictor variables between the three groups. The Cramer study supported earlier findings, indicating the community college

grade point average was the best predictor of the first-year post-transfer grade point average. This study was delimited to only one community college.

Wielanga, Kelso, Sjoblom, Jones, Dallum and Hansen (1982), in a more recent study, measured the persistence of entering freshman and transfer students at the three regents universities in Iowa. The study traced four entering undergraduate classes: 1960 to 1961, 1965 and 1966, 1970 and 1971 and 1975 and 1976. This study, contrary to other similar studies in Iowa, indicated few differences between the grade point averages of native students and transfer students who had graduated. Wielanga did not distinguish between the types of transferees nor did he statistically compare the transfer students with natives.

In a study of University of Iowa students on academic probation during 1982 and 1983, Graham and Dallum (1984) determined all transfer students at University of Iowa were more likely to be placed on academic probation during their tenure at the University than students who were native. Iowa community college students were not, however, any more likely to be placed on probation than students who transferred from other types of institutions, including other major universities.

A study conducted by Giddings (1985) centered upon the performance, progress, and degree of achievement of community college transfer students who entered the three state universities in Iowa.

Although few significant variances were found among the students from the different community colleges, variances were found in the success of community college transfer students between the receiving regents universities. Giddings indicated when similar students were compared, few differences existed between the community college transfer students and the students native to the universities. A significance was identified when community college transfer students were separated by total hours transferred. The student who transferred fewer than two years had lower success rates than those students transferring at least two years of credits.

Studies Relating to Articulation Practices

A study involving transfer student success based on articulation agreements was conducted within the Florida university system. Pierce (1970) investigated the problems with junior college students transferring to a senior institution. In his comparisons of the Florida articulation practices between the state universities and the state community colleges, the greatest need was a demonstrated interest in the transferring student before and after the transfer.

An Oregon State University study by Lenmark (1969) compared the academic achievement of Oregon Community College transfer students with native students at Oregon State University. With respect to academic achievement, persistence and graduation, the study revealed a greater emphasis should be placed on preparation for transfer by both

two-year and four-year institutions. This emphasis will help avoid the achievement and persistence differences associated with transfer shock.

A somewhat different but related finding was found in a study conducted Hergenroeder (1968). He studied the performance of community college transfers to four-year Michigan colleges and universities. Little significant difference was found between the grade point average of the native student and the transfer student, indicating that some articulation practices were in place and functioning. Hergenroeder continued, however, with the recommendation that additional data be gathered to base articulation practices on data rather than on expectancies and inferences concerning the students preparation in transfer. Another Michigan study by Cargy (1969) showed almost 80 per cent of those students who applied to Michigan State University from Michigan Community Colleges and were then rejected and subsequently admitted to other four-year institutions successfully completed their degrees. These students graduated from the institutions that accepted them, indicating that in addition to a poor selection process there were deficiencies in the admittance practices. Cargy concludes that greater emphasis is needed to modify orientation and articulation practices of the community colleges.

Research by Astin (1983) suggests there is some evidence that students who manage to make the transfer to the senior college actually have a better chance of completing the baccalaureate than do native students in the same college. He cites that a major effort needs to be focused on pre-transfer activities.

Kintzer (1971) suggests that a better job of advising students and dispensing information at earlier times during the students' first and second years will add to transfer success. In another study by Kintzer (1971), three types of articulation styles were identified:

1. The Articulation Conference Plan - generally one of voluntary action;
2. The Formula Plan - specific legislated action or formula for transfer;
3. The Core Curriculum Plan - based on a common general education pattern.

Kintzer found successful articulation efforts in selected states evolved from one of these plans. Although many of the efforts which are being implemented will be coordinated by state agencies, Kintzer noted that voluntary rather than mandated agreements are preferable.

The State of California subscribed to an articulation plan which was characterized by voluntary cooperation between two-year and four-year institutions. The community colleges are authorized to identify by certification that the minimum requirements have been met in one or more fields up to completion of the total 40 units of the general education requirements in the community colleges (Glenn 1972). The

communication between the colleges lack clarity between the community college and four-year institutions. This lack of clarity was caused by the limits on the number of units accepted and the processing of grades by four-year colleges and universities. Other problems included full institutional acceptance of vocational credits by the transfer institution and individual divisions and/or instructor evaluation of the transfer credit.

The Florida plan for articulation maintains institutional integrity while forcing a close agreement with the community colleges and the state universities. Participation and cooperation between the Florida institutions has not only resulted in better communication and awareness of educational activities, but has provided a very successful articulation process. A statewide course numbering system was developed so that equivalent courses could be accepted for transfer without misunderstanding (Zeldman 1982). The system identifies courses in all post secondary and participating private institutions that are equivalent, no matter where they are taught in the state.

Illinois, following the pattern of the Florida plan in developing articulation practices, has formulated an Articulation Council which meets annually for the discussion and improvement of articulation practices (Darnes 1971). A further response to the articulation problem was developed by the Michigan Association of Collegiate Registrars and Admissions Officers in a proposal to all state college

presidents. The proposal presented the basic requirements acceptable for all students in most programs; in particular, for those students with an Associate of Arts degree who wish to transfer at the junior level into most programs at the four-year public institutions.

Efforts to aid the transferring student in Texas had resulted in the Texas State Coordinating Board for Colleges and Universities adopting a general core curriculum and reviewing the issue of transfer credit. Although problems continue to occur between individual institutions, the coordinating board has the power to commission committees comprised of both two-and four-year college faculties to examine particular problems (McCrary 1985).

Summary of Review of Literature

The literature suggests that development and growth of transfer functions has been greatest where there is continued interest and pressure by those involved in the process of articulation, namely admissions and student personnel staff. As indicated in the introductory chapter, the increased number of students involved in the transfer process and the increased number of two-year colleges provide incentives for data to measure student persistence and practices that influence articulation. The result of this analysis will provide for an understanding of how the Iowa community college student matriculates and persists when compared to other graduates of selected independent colleges.

CHAPTER III--METHODOLOGY

The purpose of this study was to examine what effects transferring credits from other colleges had upon total hours accumulated at graduation at four independent colleges in Iowa. Transcripts of students who transferred from Iowa community colleges, out-of-state community colleges, other four-year colleges and native students were examined by college. This section encompasses a description of the data and its treatment. The topics included in this section are the following: the population to be studied, the sample, the data collection, the hypothesis to be tested, and the statistical methods used for analysis of the data.

Two methods of analysis were used to provide a more accurate presentation of the data. In addition to the robust analysis of variance ANOVA, the Scheffé method was calculated to provide a more conservative interpretation. A separate f-ratio has been computed for each category of students identified in the study. The level of significance has been determined at the .05 level in this non-directional test.

Population

The population studied in this investigation was students who transferred to and graduated from an independent college in Iowa during the 1984 academic year. Transcripts from this population were compared to those of students native to the independent colleges that graduated in the same year. The populations represent all community

college students or other students who transferred to independent colleges compared to all students native to an independent college. Comparisons were made between those students at specific colleges.

Sample

The sample selected for this research was community college and other students who transferred to one of the four selected independent colleges, and graduated in 1984. The graduates were divided into four groups. Placement of the graduates into these groups was determined by: a) what type of college the student transferred to; and b) number of transfer credits articulated into the baccalaureate degree granting college. To qualify as a transfer student, a minimum of 30 semester hours must appear on the graduate's transcript as transfer credit. The groups were: a) those students who transferred from a community college in Iowa a minimum of 30 semester hours; b) those students who transferred a minimum of 30 semester hours from a community college outside the State of Iowa; and c) those students who transferred a minimum of 30 semester hours from another four-year college. The fourth group in this sample was those students who did not transfer, or if they did transfer, they transferred no more than 29 semester hours. The fourth group was identified as native. In the cases where 30 or more semester hours were transferred from more than one of the three transfer groupings, the student was placed in the category where the largest number of transfer credits came.

Data Collection

The data for this study were collected from the office of the registrar, and the office of articulation and admissions at each of the four selected private colleges. Permanent transcripts of each student were used to develop the necessary student profiles of hours earned in the baccalaureate program. The following information was collected on each student in the sample groups from the final transcripts of the 1984 graduates:

1. Total number of transfer students graduating at each of the four independent colleges in 1984.
2. Total number of students graduating from each of the four selected independent colleges in 1984.
3. Total number of students who transferred more than 30 hours to one of the four selected independent colleges from a community college in the state of Iowa.
4. Total number of students who transferred more than 30 hours to one of the four selected independent colleges from a community college outside the state of Iowa.
5. Total number of students who transferred more than 30 hours to one of the four selected independent colleges from another four year college.
6. Number of total credits accumulated by each transfer student at the point of graduation.

7. Number of credits transferred by each student from the transfer college.
8. Number of semesters required to complete degree requirements for transfer students.
9. Total number of student who did not transfer 30 hours into the selected independent colleges (native students).

Hypotheses to be Tested

Hypotheses 1: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the native student and the student who transferred 30 or more hours from: a) an Iowa community college; b) a community college outside of Iowa; and c) another four-year college.

Hypotheses 2: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transfer from a community college in Iowa and those who transfer from a community college outside of Iowa.

Hypotheses 3: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transfer from a community college in Iowa and those students who transfer from another four-year college.

Hypotheses 4: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transfer from a community college outside of Iowa and the students who transfer from another four-year college.

Analysis of the Data

The one-way analysis of variance was the primary statistical procedure used to analyze these data in this investigation. The differences between the mean of semester hours completed to graduate within each group was calculated to determine differences in hours to degree attainment between transfers and native students at selected independent colleges. The analysis of variance (ANOVA) is an inferential technique used to determine whether two or more means are significantly different from one another (Hinkle, Wiersman and Jurs 1979).

The categories of transfers were tested within each college rather than analyzing a factorial between colleges. Each test was repeated at the selected colleges. The reasons for not using the factorial method and pooling these data were: 1) record keeping methods at each college were not consistent with one another, and 2) requirements for graduation and within majors were not the same. Repetition of the tests within each college provided consistency in analysis.

These data consist of the number of semester hours each student completed at any college other than the one granting the baccalaureate degree. These data provided the information used to place the student into the categories of: a) Iowa community college; b) out of state community college; c) other four year college; or d) native. In addition, these data consisted of the number of total semester hours completed by each student at the point of graduation. The collection of these data meets all criteria set forth in this study. All credits have been converted to semester hours to provide consistency in measurement of requirements completed for graduation at the college which the student ultimately sought the degree.

CHAPTER IV--PRESENTATION AND ANALYSIS OF THE DATA

The statistical analysis and findings presented in this chapter were based upon data derived from the transcripts of all 1984 baccalaureate graduates of the four selected independent colleges in this study. The four independent colleges selected were co-educational baccalaureate degree granting colleges in the state of Iowa. Enrollments at these colleges ranged between 1,000 and 3,500 students (College Handbook 1984-85).

These data were prepared to address the questions outlined in Chapter 1. Graduates at each of the selected colleges were categorized according to transfer of credit status as defined in this research. Students graduating in 1984 with less than 30 hours transferred were defined as native to the college. Those graduating with 30 or more hours transferred into the college awarding the degree were placed in one of three categories: 1) transferring 30 or more semester credit hours from an Iowa community college (hereinafter referred to as an Iowa community college transfer); 2) transferring 30 or more semester credit hours from a community college outside of Iowa (hereinafter referred to as an out-of-state community college transfer); and 3) transferring 30 or more semester credit hours from a four-year college other than the selected independent college awarding the degree (hereinafter referred as a four-year college transfer). In the case where the student qualified as a transfer and had transfer credits from more than one of the identified groups, the

student was placed in the group where the largest number of transfer credits were recorded.

Three tables were used to provide information and statistical results within the four selected colleges. Table II, V, VIII and XI provide information for each college about the mean number of credits, standard deviation and total number of students in each transfer group. Tables III, VI, IX and XII provide a summary of the analysis of variance within each college which include: summary of squares; degrees of freedom; mean squares; and F-ratios both calculated and tabular. Tables IV, VII, X and XIII provide statistical summaries of the ANOVA and Scheffé tests for the hypotheses tested at each of the four selected colleges. The two methods of analysis of variance were repeated for the four hypotheses tested at the selected colleges.

Data were gathered and tested to determine the differences, if any, in the total credits taken upon graduation between the three groups identified as well as the students native to the selected colleges. The analysis determined the advantage or disadvantage that state community college students experienced as a result of transferring credits compared to native students and other transfers.

The statistical tests were executed to respond to questions presented in this study. The questions were addressed from the results of each test administered. In an attempt to provide clarity to the analysis in this research, the hypotheses were tested and

summarized based on criteria within each of the selected independent colleges.

Two procedures were used to compare one group mean to another within all four colleges. The first procedure was standard analysis of variance, ANOVA using the respective degrees of freedom and mean square within for the two means being compared. The second procedure was Scheffé using the pooled within mean square and degrees of freedom from the analysis of all four groups. Thus, both the calculated and tabular F values were different for the two procedures. The first procedure does not take into account that the comparisons were not independent.

Statistical Findings of Hypotheses

The reason for selecting these two methods of analysis were two-fold. First, the review of literature indicated the standard ANOVA method was used in educational research. Second, the Scheffé method, using the pooled within means square, was considered to be a more conservative statistic.

College I

Forty-seven percent of the total 1984 graduates at College I transferred 30 or more semester credits toward graduation. The largest category of transfers was comprised of 28 students from other four-year colleges. Iowa community college transfer students graduating from College I numbered 16 and there were 10 out-of-state community college transfer students. Thus, of the total 114 graduates, 60 were categorized as native students.

To graduate from College I, a student was required to complete 124 semester hours for the baccalaureate degree. The mean number of hours completed by the 1984 native student graduate was 128.5, 4.5 hours more than the 124 required. Iowa community college transfers completed an average of 136.5 hours to graduate 12.5 hours over the published requirement. Both out-of-state community college transfers and four-year college transfers averaged 140.6 hours, 16.6 additional hours to the requirement.

The means and standard deviations of data on the groups of students for College I was summarized on Table III.

TABLE II
Means and Standard Deviations of Credits
for Graduates at College I

Group	Mean Number of Credits	Standard Deviation	N
Native	128.5	6.1	60
Iowa Community College Transfer	136.5	15.0	16
Out-of-State Community College Transfer	140.6	26.0	10
Four-Year College Transfer	140.6	18.8	28

H0 1: There was no differences in the number of hours taken to graduate from an independent college in Iowa between the native student and the student who transferred 30 or more semester hours

from: a) an Iowa community college; b) a community college outside of Iowa; c) another four-year college.

The analysis of variance statistical test performed on all four groups at College I resulted in a rejection of the null hypothesis. The calculated F-factor of 5.28 exceeded the tabular statistic of 2.70 at the .05 significance level for 3 and 110 degrees of freedom. The difference between the means of one or more of the groups at College I was determined as greater than might occur by chance. Summary statistics were shown in Table III.

TABLE III
Analysis of Variance Summary for College I

Source	Summary of Squares	Degree of Freedom	Mean Square	F Calc.	F Tab.
Between Groups	3565.00	3	1188.33	5.28	2.70
Within Groups	<u>24777.70</u>	<u>110</u>	225.25		
Total	28342.70	113			

HO 1a: Native Students and Iowa Community College Transfer Students

ANOVA Results of the standard analysis of variance as addressed in part (a) of the null hypothesis for hours taken to graduate by native students at College I and hours taken by Iowa community college students who transferred to College I showed there was a significant difference in the mean number of semester hours between the groups.

The data were summarized in Table IV. The test statistic of $F = 9.46$ compared to tabular F of 3.98 was significant at the .05 level for 1 and 74 degrees of freedom. The null hypothesis was, therefore, rejected as it pertains to the number of hours taken by native students and Iowa community college students at College I.

TABLE IV

Summary ANOVA Statistics Using Two Methods for College I

Comparison	ANOVA Calculated F	Scheffé Calculated F
HO 1a: Native Students and and Iowa Community College Transfers	9.46*	3.65
HO 1b: Native Students and Out-of-State Community College Transfers	8.93*	5.57
HO 1c: Native Students and Four-Year College Transfers	16.54*	12.42*
HO 2: Iowa Community College Transfers and Out-of-State Community College Transfers	.25	.44
HO 3: Iowa Community College Transfers and Four-Year College Transfers	.53	.74
HO 4: Out-of-State Community College Transfers and Four-Year College Transfers	.00	.00

*Significant at .05 level.

Scheffé The second test of the difference between the native students and Iowa community college students at College I was the Scheffé method of multiple comparison. This comparatively more conservative method of testing showed no significant difference between the means of the two groups. The F value of 3.65 did not exceed the conservative critical value of 8.1 at the .05 significance level. The statistics were summarized in Table IV. The null hypothesis was rejected using this method.

HO 1b: Native Students and Out-of-State Community College
Transfer Students

ANOVA The results of the standard analysis of variance for semester hours completed by native students at College I and the semester hours completed for out-of-state community college students who transferred to College I showed a significant difference in the mean number of semester hours taken by both groups. Summary data appearing in Table IV HO 1b showed the test statistic of $F = 8.93$ exceeded the tabular F of 3.99 at the .05 significance level for 1 and 68 degrees of freedom. The null hypothesis of no significance was rejected for native students' hours and out-of-state community college students' hours at College I using this method of analysis.

Scheffé Results of an analysis of variance using the Scheffé method resulted in no significant differences between the means of native student hours and out-of-state community college transfer hours at College I. The calculated F value of 5.57 did not exceed the

critical value of 8.1 at the .05 significance level. Consequently, the null hypothesis was rejected using this method. Results were shown in Table IV.

HO 1c: Native Students and Other Four-Year College Transfer Students

ANOVA The analysis of variance between the native students and other four-year college transfers at College I resulted in rejection of the null hypothesis in both analysis. The standard method resulted in a calculated F of 16.54, exceeding the tabular F of 3.96. The hypothesis of no significance was rejected using this method at the .05 significance level.

Scheffé The Scheffé test resulted in calculated F of 12.42. This value also exceeded the critical value of 8.1 at the .05 significance level. The null hypothesis was rejected as it pertained to native students and students who transferred from other four-year colleges. Both methods were illustrated in Table IV.

HO 2: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transfer from a community college in Iowa and those who transferred from a community college outside of Iowa.

ANOVA The first method of one-factor analysis of variance resulted in a failure to reject the null hypothesis between the number of hours taken to graduate for Iowa community college transfer students and the out-of-state community college transfer students.

The calculated F of 2.5 did not exceed the tabular F of 4.26 at the .05 significance level using the standard ANOVA as shown in Table IV.

Scheffé The calculated F of .44 fell below the tabular value of 8.1 for the test of difference between the means of hours taken to graduate for the groups of Iowa and out-of-state community college transfers. No significant difference existed in the number of hours completed to graduate from College I in either of these two groups. The Scheffé test resulted in a failure to reject the null hypothesis.

HO 3: There was no significant difference in the number of hours taken to graduate from an independent college in Iowa between the students who transferred from a community college in Iowa and those students who transferred from another four-year college.

ANOVA No significant difference existed in hours taken to graduate from College I between community college students from Iowa and those who transferred from four-year colleges. The calculated F of .53 did not exceed the tabular value of $F = 4.07$. The factor analysis of the difference between means of the total hours taken toward degree attainment at College I resulted in failure to reject the null hypothesis.

Scheffé The Scheffé test similarly resulted in a failure to reject the null hypothesis. The test result of $F = .74$ fell below the tabular value of $F = 8.1$ at the .05 significance level. Data were summarized in Table IV.

HO 4: There was no significant difference in the number of hours taken to graduate from an independent college in Iowa between students who transfer from a community college outside of Iowa and the students who transfer from another four-year college.

ANOVA-Scheffé Results of a one-way analysis of variance, shown in Table IV showed no difference between the mean using both methods of testing. The calculated F of 0 at 1 and 36 degrees of freedom for the standard ANOVA and the Scheffé method of analysis indicated no significant difference existed between the mean number of hours to graduate from an out-of-state community college and another four-year college. The null hypothesis for differences between the means of out-of-state community colleges and other four-year institutions at College I was not rejected.

College II

The college selected in this study as College II had the fewest number of students who transferred 30 or more hours toward a baccalaureate degree at that college. Thirty-four percent or 82 students of the total 241 graduates in 1984 were defined as transfer students.

The college catalog, describing graduation requirements for 1984 graduates, indicated a student must complete a total of 120 semester hours to graduate with the baccalaureate degree. Native students graduating at College II in 1984 completed an average of 122 hours with a standard deviation of 4.6 (N = 159). Iowa community college

transfers who graduated in 1984 completed an average of 121 total hours with a standard deviation of 3.1 (N = 16). Out-of-state community college transfer students completed an average 122.4 hours at graduation and students from other four-year colleges transferring to College II completed 126.4 hours. Table V provides a summary of statistical data pertinent to the groups studied for College II.

TABLE V
Means and Standard Deviations of Credits
for Graduates at College II

Group	Mean Number of Credits	Standard Deviation	N
Native	122.0	4.6	159
Iowa Community College Transfer	121.0	3.1	16
Out-of-State Community College Transfer	122.4	3.3	13
Four-Year College Transfer	126.4	9.0	53

H0 1: There were no differences in the number of hours taken to graduate from an independent college in Iowa between the native student and the student who transferred 30 or more semester hours from: a) an Iowa community college; b) a community college outside of Iowa; and c) another four-year college.

Results of an ANOVA between all four groups selected at College II were shown in Table VI. The calculated F of 7.58 at the .05 significance level exceeded the tabular statistic of 2.65 with 3 and 237 degrees of freedom. The hypothesis of no difference between these groups was, therefore, rejected.

TABLE VI
Analysis of Variance Summary for College II

Source	Summary of Squares	Degree of Freedom	Mean Square	F Calc.	F Tab.
Between Groups	825.01	3	275.00	7.58	2.65
Within Groups	<u>8601.00</u>	<u>237</u>	36.29		
Total	9426.01	240			

HO 1a: Native Students and Iowa Community College Transfers

ANOVA The null hypothesis showed no difference existed between those students native to College II and those students who transferred 30 or more semester hours from an Iowa community college when total hours completed at graduation were considered. Using the standard analysis method of measuring the variance between the means of these two groups, resulted in no significant difference existing in hours completed. The calculated F value of .68 did not exceed the tabular F of 3.91 with 3 and 231 degrees of freedom at the .05 significance level. The hypothesis of no significant difference between the hours to graduate of these two groups failed to be rejected using this method.

Scheffé The Scheffé method also resulted in a failure to reject the null hypothesis. The calculated F of .35 did not exceed the tabular F of 8.79 at the .05 significance level. No significant difference existed between the mean number of hours to graduate between native students and Iowa Community College transfer students at College II using this conservative method of analysis. A summary was provided in Table VII.

TABLE VII

Summary ANOVA Statistics Using Two Methods for College II

Comparison	ANOVA Calculated F	Scheffé Calculated F
HO 1a: Native Students and and Iowa Community College Transfers	.68	.37
HO 1b: Native Students and Out-of-State Community College Transfers	.07	.05
HO 1c: Native Students and Four-Year College Transfers	19.18*	20.80*
HO 2: Iowa Community College Transfers and Out-of-State Community College Transfers	1.21	.34
HO 3: Iowa Community College Transfers and Four-Year College Transfers	4.95*	9.59*
HO 4: Out-of-State Community College Transfers and Four-Year College Transfers	2.38	4.64

*Significant at .05 level.

HO 1b: Native Students and Out-of-State Community College Transfers

ANOVA Results of an analysis of variance test to determine the difference, if any, between native students and out-of-state students indicated no significant difference existed between the mean number of hours these two groups were required to graduate. The calculated F of .07 did not exceed the 3.91 tabular F value at the .05 significance level. The null hypothesis could not be rejected.

Scheffé The Scheffé method of analysis provided similar results at the .05 significance level. The calculated F value of .05 did not exceed the tabular value of F at 8.79. The hypothesis failed to reject either the standard method of analysis or this more conservative method. Summary statistics were highlighted in Table VII.

HO 1c: Native Students and Four-Year College Transfers

ANOVA The first test of significance between those students native to College II and those students who transferred from other four-year colleges indicated a significant difference at the .05 level. As shown in Table VII, the calculated F of 19.18 exceeded the 3.89 tabular F ratio. The null hypothesis was rejected.

Scheffé The Scheffé method of analysis also showed a difference between native students and students who transferred from another four-year college. The calculated F of 20.80 exceeded the tabular F of 8.79 at the .05 significance level.

The robust ANOVA and the Scheffé methods of one-factor analysis of variance resulted in the rejection of the null hypothesis of no significant difference between these two groups. An obvious difference did exist between the persistence of native students and four-year transfers that graduated in 1984 from College II.

HO 2: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transfer from a community college in Iowa and those who transfer from a community college outside of Iowa.

ANOVA No significant difference was shown in the standard analysis of variance between students who transferred to College II from Iowa community colleges and students who transferred from community colleges outside of Iowa using the total number of hours completed at graduation. The calculated F of 1.21 did not exceed the tabular F = 4.21 at the .05 significance level. The null hypothesis was not rejected using the ANOVA method of analysis.

Scheffé The Scheffé method also resulted in the failure to reject the hypothesis of no significance between the two groups. The calculated F of .34 did not exceed the tabular value of F at 8.79, as shown in Table VII.

The null hypothesis was, therefore, not rejected using either method of analysis. No significant difference existed between out-of-state community college transfers and Iowa community college students who transferred to College II.

HO 3: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transferred from a community college in Iowa and those who transferred from another four-year college.

ANOVA The results of the ANOVA method of analysis between the group of students who transferred to College II from an Iowa community college and another four-year college indicated a significant difference in persistence. As shown in Table VII, the calculated value of F of 4.95 exceeded the tabular F of 3.99. The null hypothesis was rejected.

Scheffé The results using the Scheffé method of analysis also showed a significant difference in total hours completed at graduation between Iowa community college transfers and four-year college transfers at College II. The Scheffé method calculation of $F = 9.59$ exceeded the tabular F of 8.79 at the .05 significance level. The null hypothesis of no difference between hours to graduate was rejected for students at College II. Results were summarized in Table VII.

HO 4: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transferred from a community college outside of Iowa and the students who transferred from another four-year college.

ANOVA The statistical ANOVA performed on these two groups failed to reject the null hypothesis of no significant difference existing between total hours completed at graduation of out-of-state community college transfers and four-year college transfers at College II. The calculated F of 2.38 did not exceed the tabular F of 4.00 as shown in Table VII.

Scheffé The Scheffé method of analysis on these two groups also resulted in a failure to reject the null hypothesis. The calculated F of 4.64 did not exceed the tabular F of 8.79 at the .05 significance level. No significant differences existed in the persistence of out-of-state community college transfers and four-year college transfers at College II.

College III

College III in this study required the completion of 124 semester hours for the baccalaureate degree. A total of 735 students graduated in 1984. Sixty-seven percent or 496 of the graduates were classified in this study as native students. The mean number of hours completed by native graduates was 128 with a standard deviation of 6 as shown in Table VIII.

There were 59 students who transferred 30 or more semester hours from Iowa community colleges and graduated in 1984 at College III. The mean number of hours completed to graduate for this group was 128.6 with a standard deviation of 6.6.

TABLE VIII

Means and Standard Deviations of Credits
for Graduates at College III

Group	Mean Number of Credits	Standard Deviation	N
Native	128.0	6.0	496
Iowa Community College Transfer	128.6	6.6	59
Out-of-State Community College Transfer	129.0	7.1	38
Four-Year College Transfer	129.3	8.1	142

The out-of-state community college transfer students for College III graduated with an average of 129 semester hours completed and a standard deviation of 7.1. Five percent or 38 of the total graduates were classified as out-of-state community college transfers.

Students who transferred from other four-year colleges were the largest transfer group in the study of College III. One hundred forty-two completed 30 or more hours at another four-year college and then transferred to College III and graduated. The mean number of hours completed for this group was 129.3 with a standard deviation of 8.1. Means, standard deviations and numbers in the study of College III were summarized on Table VIII.

HO 1: There were no differences in the number of hours taken to graduate from an independent college in Iowa between the native student and the student who transferred 30 or more semester hours from: a) an Iowa community college; b) a community college outside of Iowa; and c) another four-year college.

The summary ANOVA for all groups at College III resulted in a failure to reject the null form of hypothesis 1. The calculated F-factor of 1.75 did not exceed the tabular F statistic of 2.61 at the .05 significance level for 3 and 731 degrees of freedom. The difference between the mean numbers of hours of the four groups of students was determined to be no greater than might occur by chance. Summary statistics are provided in Table IX.

TABLE IX
Analysis of Variance Summary for College III

Source	Summary of Squares	Degree of Freedom	Mean Square	F Calc.	F Tab.
Between Groups	225.15	3	75.03	1.75	2.61
Within Groups	<u>31416.00</u>	<u>731</u>	42.98		
Total	31641.15	734			

HO 1a: Native Students and Iowa Community College Transfers

ANOVA Table X showed the results of the standard analysis of variance for total number of hours completed at graduation of groups of native students and Iowa community college transfer students from College III. No significant difference was found between these two groups at the .05 significance level when the ANOVA method of analysis was performed. The calculated F-value of .58 did not exceed the tabular F of 3.86.

Scheffé The results, as shown in Table X, using the Scheffé method of analysis also indicated no significant difference existed between these two groups. The calculated F-factor of .49 did not exceed the tabular F of 7.83 for 3 and 731 degrees of freedom.

The null hypothesis for native and Iowa community college students failed to be rejected using the two methods of one-factor analysis at College III. No significant difference existed between these groups in the persistence toward graduation when total hours were considered. The mean number of hours completed by native students at that college was 12.8, four more than required as described in the catalog. The four-year college transfers who graduated at the same time completed 129.3 hours at graduation, 1.3 more hours than students native to the college and 5.3 more than the catalog description.

TABLE X

Summary ANOVA Statistics Using two Methods for College III

Comparison	ANOVA Calculated F	Scheffé Calculated F
HO 1a: Native Students and and Iowa Community College Transfers	.58	.49
HO 1b: Native Students and Out-of-State Community College Transfers	1.00	.85
HO 1c: Native Students and Four-Year College Transfers	4.74*	4.69
HO 2: Iowa Community College Transfers and Out-of-State Community College Transfers	.07	.08
HO 3: Iowa Community College Transfers and Four-Year College Transfers	.36	.50
HO 4: Out-of-State Community College Transfers and Four-Year College Transfers	.05	.08

*Significant at .05 level.

HO 1b: Native Students and Out-of-State Community College
Transfers

ANOVA The one factor analysis using the standard ANOVA method of statistical measurement indicated no significant difference existed at the .05 level between students native to College III and students who

transferred in 30 or more hours from out-of-state community colleges. The calculated F-factor of 1.00 did not exceed the tabular F of 3.86.

Scheffé The statistical analysis performed on College III native students and out-of-state community college transfer students using the conservative Scheffé method of analysis provided the same results as the ANOVA statistical method described earlier. Table X showed the calculated F-factor of .85 using the Scheffé method did not exceed the tabular F of 7.83 at the .05 significance level.

Hypothesis 1b was not rejected using the two methods of comparisons chosen in this research. The statistics performed indicated no significance at the .05 level between native students and out-of-state community college transfers when measured by the independent variable of total hours completed at the point of graduation.

HO 1c: Native Students and Four-Year College Transfers

ANOVA The last statistical measurement performed as a part of hypothesis 1 for College III was the analysis of variance between the native students and the students who transferred from other four-year colleges. As shown throughout this study, a difference existed between these two groups in at least one of the two methods of statistical analysis chosen as a part of this research. Table X showed, the ANOVA statistical measurement indicated a difference did exist beyond chance between these two groups at College III. The calculated F-factor of 4.74 exceeded the tabular F of 3.86 at the .05

significance level with 3 and 731 degrees of freedom. The null hypothesis was rejected using this method.

Scheffé The comparatively more conservative Scheffé method of measurement provided a different conclusion than that drawn by the preceding analysis of variance. The calculated F-factor of 4.96 did not exceed the constant tabular F of 7.83 at the .05 significance level.

Hypothesis 1c was not rejected using this method to measure the differences between native students and other four-year college transfers at College III.

HO 2: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transfer from a community college in Iowa and those who transfer from a community college outside of Iowa.

ANOVA The results of the statistical measurements performed using the ANOVA in Table X showed no significant difference between these two groups as measured by the independent variable of total hours completed at graduation. The calculated F-factor of .07 did not exceed the tabular F of 3.96 at the .05 significance level for pair wise comparisons. The null hypothesis could not be rejected for these two groups of College III graduates.

Scheffé Results using the Scheffé test showed the calculated F-factor of .08 did not exceed the tabular F value of 7.83 at the .05 significance level. The students who transferred to College III from an out-of-state community colleges persisted no differently when

measured by total hours completed at graduation than those students who transferred from a community college in Iowa. This method also resulted in a failure to reject the null hypothesis.

HO 3: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transferred from a community college in Iowa and those students who transferred from another four-year college.

ANOVA The results of this standard analysis of variance between the groups of Iowa community college students and other four-year college students at College III indicated the null hypothesis could not be rejected using this test at the .05 significance level. The calculated F-factor of .36 did not exceed the tabular F of 3.89. No significant difference existed in persistence between these two groups at College III.

Scheffé As Table X also showed, when using the more conservative Scheffé statistical analysis, no significant difference existed in the persistence between these two groups at College III. The calculated F-factor using this method was .50 which did not exceed the 7.83 tabular F-factor at the .05 significance level with 3 and 731 degrees of freedom.

HO 4: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transfer from a community college outside of Iowa and the students who transfer from another four-year college.

ANOVA The analysis of variance between the two groups of students at College III appeared in a statistical summary on Table X. Using the ANOVA method of analysis, the calculated F-factor of .05 did not exceed the tabular F value of 3.91 at the .05 significance level. The hypothesis was not rejected based on the results of the test to determine the differences between the means of these two groups.

Scheffé The results of the second method of analysis used to evaluate these groups showed the same results as the standard ANOVA measurement. The calculated Scheffé F-factor was .08 and did not exceed the tabular constant F of 7.83 as shown in Table X. The null hypothesis was not rejected using this method of analysis.

The differences that existed between the community college student from outside Iowa and those students who transferred from another four-year college were attributable to factors other than chance when measured at the .05 significance level using both the robust ANOVA and the conservative Scheffé methods of statistical analysis.

College IV

The fourth college chosen in this study had unique characteristics when compared to the other three selected independent colleges. First, a larger percentage of students who graduated in 1984 from College IV, as compared to students who graduated as native to the college, had transferred 30 or more hours into the college. Second, community college students who transferred 30 or more hours toward graduation, either from Iowa community colleges or from out-of-state

community colleges, took fewer hours to graduate in 1984 than did students native to the college. College IV, according to the 1984 catalog, required 128 semester hours to graduate with the baccalaureate degree. Table XI showed the 137 native students who graduated in 1984 completed an average of = 132.3 semester hours with a standard deviation of 6.9, while the 106 students who transferred from an Iowa community college averaged 130.8 semester hours at graduation with a standard deviation of 4.9. The 26 out-of-state community college transfers completed a mean of 131.2 semester hours with a standard deviation of 5.5 while the 83 students who transferred to College IV from another four-year college completed a mean 137.2 semester hours with a standard deviation of 12.2, also shown in Table XI.

TABLE XI
Means and Standard Deviations of Credits
for Graduates at College IV

Group	Mean Number of Credits	Standard Deviation	N
Native	132.3	6.9	137
Iowa Community College Transfer	130.8	4.9	106
Out-of-State Community College Transfer	131.2	5.5	26
Four-Year College Transfer	137.2	12.2	83

H0 1: There were no differences in the number of hours taken to graduate from an independent college in Iowa between the native student and the student who transferred 30 or more semester hours from: a) an Iowa community college; b) a community college outside of Iowa; and c) another four-year college.

The statistical ANOVA performed on all four groups of students at College IV resulted in a rejection of the null hypothesis stating there was no difference in the groups when measuring total hours taken prior to graduation. Table XII showed the calculated F-factor of 11.42 exceeded the tabular F of 2.63 at the .05 significance level with 3 and 348 degrees of freedom. The differences between the means of one or more of the four groups at College IV was determined to be greater than might occur by chance. Summary statistics that include the sum of squares, the degrees of freedom, the means squared and the calculated and tabular F-factors were illustrated in Table XII.

TABLE XII

Analysis of Variance Summary for College IV

Source	Summary of Squares	Degree of Freedom	Mean Square	F Calc.	F Tab.
Between Groups	2158.25	3	719.42	11.42	2.63
Within Groups	<u>21916.74</u>	<u>348</u>	62.97		
Total	24074.99	351			

HO 1a: Native Students and Iowa Community College Transfers

ANOVA Table XIII showed the results of the statistical analysis performed to determine the differences, if any, between native students and those students who transferred from Iowa community colleges and graduated from College IV. Use of the ANOVA method of analysis resulted in a failure to reject the null hypothesis. The calculated F-factor of 3.63 did not exceed the tabular value of $F = 3.89$ at the .05 significance level.

Scheffé The Scheffé method results were the same as robust ANOVA results. Table XIII showed the calculated F-factor using the Scheffé was 2.14 which did not exceed the tabular F of 7.89 at the .05 significance level.

The analysis of variance showed no significant difference existed other than what might occur by chance between these two groups using both the standard and conservative methods of analysis. The null hypothesis was not rejected in either case.

HO 1b: Native Students and Out-of-State Community College Transfers

ANOVA The calculated F-factor of .58 did not exceed the tabular F of 3.91 at the .05 significance level. Comparing hours of native students and out-of-state community college students at College IV, hypothesis 1b failed to be rejected based on results of the first method of statistical test. Data summarizing these results were furnished in Table XIII.

TABLE XIII

Summary ANOVA Statistics Using Two Methods for College IV

Comparison	ANOVA Calculated F	Scheffé Calculated F
HO 1a: Native Students and and Iowa Community College Transfers	3.63	2.14
HO 1b: Native Students and Out-of-State Community College Transfers	.58	.42
HO 1c: Native Students and Four-Year College Transfers	14.80*	19.71*
HO 2: Iowa Community College Transfers and Out-of-State Community College Transfers	.16	.05
HO 3: Iowa Community College Transfers and Four-Year College Transfers	21.68*	30.27*
HO 4: Out-of-State Community College Transfers and Four-Year College Transfers	5.61*	11.32*

*Significant at .05 level.

Scheffé The calculated F-factor, using the Scheffé method of analysis, of .42 did not exceed the tabular constant F of 7.89. The null hypothesis was not rejected using the conservative Scheffé method. Results were summarized in Table XIII.

HO 1c: Native Students and Other Four-Year College Transfers

ANOVA The analysis using the standard ANOVA method indicated a significant difference did exist in semester hours completed upon graduation between native students and four-year college transfer students at College IV. As Table XIII shows, the F-factor of 14.80 exceeded the tabular F of 3.89 with 3 and 348 degrees of freedom. The null hypothesis was rejected.

Scheffé The results of one-way analysis using the Scheffé method of comparison also indicated a difference existed between native and four-year college transfers student hours. The calculated F of 19.71 using Scheffé, as shown in Table XIII, exceeded the tabular F of 7.89.

Hypothesis 1c, as stated in the null form, was therefore rejected using both methods of analysis, the standard ANOVA and the conservative Scheffé. A difference did exist between native students and four-year college transfers at College IV when calculated at the .05 significance level.

HO 2: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transferred from a community college in Iowa and those who transferred from a community college outside of Iowa.

ANOVA The calculated F-factor .16 did not exceed the tabular F of 3.92 at the .05 significance level. The difference between hours completed upon graduation at College IV for these two groups was not greater than what might occur by chance. Table XIII showed computed

and tabular values of the ANOVA method of comparison which resulted in a failure to reject the null hypothesis.

Scheffé The Scheffé method of analysis again showed no significant difference existed between Iowa community college students and out-of-state community college students who transferred to College IV based upon total hours completed at graduation. The calculated F-factor .05 did not exceed the calculated F of 7.89 at the .05 significance level. Hypothesis 2 was not rejected using this measurement of comparison.

HO 3: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transferred from a community college in Iowa and those students who transferred from another four-year college.

ANOVA The calculated F-factor 21.68 exceeded the tabular value of 3.91 at the .05 significance level with 3 and 348 degrees of freedom. As Table XIII showed, the results using the ANOVA method of comparison resulted in a rejection of the null form of the hypothesis stating that no difference exists between these two groups.

Scheffé The results of the statistical analysis performed using the Scheffé method of statistical comparison also resulted in a rejection of Hypothesis 3. The calculated F-factor of 30.27 exceeded the constant tabular F of 7.89, at the .05 significance level as shown in Table XIII.

The two previously described methods of one-way factor analysis resulted in a rejection of hypothesis 3. A difference did exist between the hours taken by the Iowa community college student and the four-year college student who transferred to College IV and graduated in 1984. The difference at the .05 significance level was considered greater than what might occur by chance.

HO 4: There was no difference in the number of hours taken to graduate from an independent college in Iowa between the students who transferred from a community college outside of Iowa and the students who transferred from another four-year college.

ANOVA Table XIII showed calculated F-factor of 5.61 using the standard ANOVA method of analysis exceeded the tabular F of 3.94 at the .05 significance level. Hypothesis 4 for College IV was therefore rejected for out-of-state community college transfer students and students who transferred from a four-year college.

Scheffé The results of the Scheffé method of analysis also resulted in rejection of hypothesis 4 for College IV. The calculated F-factor of 11.32 exceeded the tabular F of 7.89 at the .05 significance level as shown in Table XIII. A difference did exist between out-of-state community college transfer students and students who transferred to College IV from another four-year college. This difference was determined to be greater than what might occur by chance.

Summary

This chapter presents the findings of the statistical analysis used to test each of the four hypotheses of this study. The hypotheses were formulated to determine if differences existed in the degree attainment of students at independent colleges in Iowa between four categories: 1) native students, 2) Iowa community college transfers, 3) out-of-state community college transfers, and 4) four-year college transfers. The students who were classified in one of the three transfer categories had completed a minimum of 30 semester hours at a college other than the independent college selected in this study which granted the baccalaureate degree.

The dependent variable used to measure degree attainment between these groups was the total semester hours the students in each group completed at the point of graduation. The differences between these semester hours averaged at each of the four selected independent colleges were statistically measured by performing one-way factor analysis of the differences between the means of the four categories of students at each of the selected independent colleges. In an effort to provide an accurate measurement, two methods of one-factor analysis were used. The robust ANOVA and the comparatively conservative Scheffé methods were calculated at a .05 level of significance.

Hypothesis 1 stated that no difference existed between native students at each of the selected independent colleges and the three categories of transfer students identified. There were no significant

differences with respect to the total semester hours each group completed toward graduation when compared to the native student who graduated.

Hypothesis 1a, concerned with native students and Iowa community college transfers, failed to be rejected in all four of the selected independent colleges tests. Only when using the robust ANOVA method did a rejection occur. Tests performed for hypothesis 1a using the ANOVA and Scheffé methods are summarized in Table XIV.

TABLE XIV
Summary of Colleges for Hypothesis 1a

Hypothesis 1a	<u>ANOVA</u>	<u>Scheffé</u>
College I	Reject	Accept
College II	Accept	Accept
College III	Accept	Accept
College IV	Accept	Accept

The one rejection of the hypothesis of no difference between the means of these two groups occurred when using the ANOVA method at College I. All other tests resulted in a failure to reject the null hypothesis.

Tests of differences of the mean hours taken to graduate between native students and out-of-state community college transfers resulted in failure to reject the hypothesis at any of the selected independent colleges. Summary results are shown in Table XV.

TABLE XV
Summary of Colleges for Hypothesis 1b

Hypothesis 1b	<u>ANOVA</u>	<u>Scheffé</u>
College I	Reject	Accept
College II	Accept	Accept
College III	Accept	Accept
College IV	Accept	Accept

Again, the only rejection occurred when analysis was performed using the ANOVA method at College I. All hypotheses failed to be rejected when the Scheffé tests were performed on the same groups.

TABLE XVI
Summary of Colleges for Hypothesis 1c

Hypothesis 1c	<u>ANOVA</u>	<u>Scheffé</u>
College I	Reject	Reject
College II	Reject	Reject
College III	Reject	Accept
College IV	Reject	Reject

The Scheffé method of analysis for College III provided the only results indicating a failure to reject the null hypothesis. The ANOVA test performed on the same group resulted in a rejection of the same hypothesis. A significant difference did exist in the mean hours taken to graduate between native students and four-year college transfers at each of the selected independent colleges in this study.

Hypothesis 2 stated no difference existed in the degree attainment of graduates who transferred to the four selected independent colleges from Iowa community colleges and out-of-state community colleges. The analysis of variance between the mean number of semester hours completed at graduation resulted in a failure to reject the hypothesis of any of the eight tests performed in hypothesis 2. Results are provided in Table XVII.

TABLE XVII
Summary of Colleges for Hypothesis 2

Hypothesis 2	<u>ANOVA</u>	<u>Scheffé</u>
College I	Accept	Accept
College II	Accept	Accept
College III	Accept	Accept
College IV	Accept	Accept

No difference was found between the mean number of hours at graduation for Iowa community college transfers and out-of-state

community college transfers at any of the four independent colleges studied.

Hypothesis 3 stated no difference existed between total hours completed at graduation by Iowa community college transfer students and four-year college transfer students at the four selected independent colleges. Analysis tests performed for Colleges I and II resulted in failure to reject the hypothesis of no difference when both the robust ANOVA and the conservative Scheffé methods of analysis were performed. Results of the two methods of analysis are summarized in Table XVIII.

TABLE XVIII
Summary of Colleges for Hypothesis 3

Hypothesis 3	<u>ANOVA</u>	<u>Scheffé</u>
College I	Accept	Accept
College II	Reject	Reject
College III	Accept	Accept
College IV	Reject	Reject

The null hypothesis was rejected following tests involving Colleges II and IV. The overall results showed a discrepancy did occur between the colleges selected for this study when testing the difference between the mean number of hours taken to graduate for Iowa community college transfers and four-year college transfers.

Hypothesis 4 stated no differences existed in the number of hours taken to graduate between the students who transferred from a community college outside of Iowa and students who transferred from another four-year college. The results of tests performed failed to reject the null hypothesis in three of the four colleges tested. These results are summarized in Table XIX.

TABLE XIX
Summary of Colleges of Hypothesis 4

Hypothesis 4	<u>ANOVA</u>	<u>Scheffé</u>
College I	Accept	Accept
College II	Accept	Accept
College III	Accept	Accept
College IV	Reject	Reject

Tests using both the ANOVA and Scheffé methods of analysis resulted in a rejection of the hypothesis of no difference for only College IV. The mean hours to graduate between the groups of out-of-state community college transfers and other four-year college transfers showed no significant difference at the majority of colleges tested.

CHAPTER V--SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The transfer process is a necessary function at independent colleges in Iowa. Of the total number of students included in this study, 45.2 percent who graduated from the selected independent colleges in Iowa transferred in 30 or more semester hours toward graduation. This number led to the research study summarized in this chapter.

Summary and Conclusions

The purpose of the study was to determine to what extent, if any, total hours accumulated upon graduation varies between: a) those students who are native to the college; b) those students who transferred 30 or more semester hours into the selected four-year college from an Iowa community college; c) those students who transferred more than 30 semester hours into the selected four-year colleges from a community college outside Iowa; and d) those students who transferred 30 or more semester hours into the selected four-year college from another four-year college. The goal of the study was to determine the effect transfer had on total hours accumulated upon graduation. The differences among institutions, and the location of the community college, were also tested to determine if these factors had an effect on the total semester hours completed to graduate with the baccalaureate degree.

Based on Chapter II, the review of literature for this study failed to provide any conclusive research regarding a student's decision to begin at a college other than the one awarding the baccalaureate degree affected the total hours completed at graduation.

Performance measurements, both predictive and descriptive, were reviewed in Chapter II of this study. These studies indicated that in groups controlled for student achievement, characteristics such as; high school rank, grade point average and college placement tests, few differences existed in performance (Slark and Bateman, 1981). In this investigation, the effect of performance on degree attainment was not the issue, but rather articulation practices.

The primary purpose of this research was to determine what effect transferring 30 or more semester hours had on total hours completed at graduation from independent colleges in Iowa. The study was designed to determine if the institutional type credits were transferred from made a difference in total semester hours completed.

To accomplish the research goal of this study, transcripts of all 1984 graduates at the selected independent colleges were studied. Those students who transferred 30 or more semester hours toward degree attainment were placed in three transfer categories: Iowa community college transfers, out-of-state community college transfers and four-year college transfers. Students with fewer than 30 semester hours indicated on the transcript as transfer hours were categorized as native students. One-way analysis of variance tests were performed

between these groups at each of the independent colleges to determine what similarity might have occurred. Each of the four hypotheses listed in Chapter III were also individually tested at the four baccalaureate degree granting colleges. To ensure an accurate measurement of significance at the .05 level, two types of analyses were performed for each group comparison.

Hypothesis 1 of this study answered the question of differences in the number of hours taken to graduate from one of the four selected independent colleges between the native students and the students who transferred 30 or more semester hours from: a) an Iowa community college; b) a community college outside of Iowa; and c) another four-year college. Using the Scheffé method of testing, no differences were found in the number of hours taken to transfer between the native students and Iowa community college transfer students at any of the four colleges. Results of tests performed using the standard ANOVA method also showed no difference existed between these two groups in all except one of the colleges included in this study. Results of the analysis performed using ANOVA on College I indicated a significant difference existed in total hours accumulated toward degree attainment between native students and students who transferred from an Iowa community college. The community college transfer student completed an average of 136.5 semester hours at graduation which, based on results of the ANOVA method for testing, was significantly greater than the 128.5 semester

hours completed by the student native to College I. Based on these findings, the student who attended a community college in Iowa and transferred 30 or more semester hours from that community college to an independent college could expect to be at no disadvantage in the total hours needed for graduation.

The findings of hypothesis 1b related to native students and students who transferred from an out-of-state community college indicated no difference existed between these two groups when hours completed toward graduation were tested, with one exception. A significant difference did exist using the ANOVA test of variance on College I. Again, the Scheffé test failed to reject the hypothesis.

Hypothesis 1c tested the difference, if any, between native students and students who transferred 30 or more hours from another four-year college. At all four of the selected independent colleges studied, a significant difference was found. Only results of College III failed to reject the hypothesis using both methods. The ANOVA however rejected the hypothesis, no difference existed between these two groups at College III. Students who transferred hours into the selected independent colleges in Iowa from other four-year colleges completed a significantly larger number of semester hours to graduate than did students who were native to the selected college.

The transfer student from a community college either in Iowa or outside that state that transferred into the selected independent colleges in Iowa with 30 or more semester hours and graduated in 1984 did not take significantly more hours to complete the baccalaureate degree than did the native students who graduated during that same year. Only students from these two groups attending College I took a number of hours significantly different than the hours taken by native students.

Conversely, community college transfers, both from Iowa and out-of-state community colleges, averaged fewer hours at graduation from College IV than did native graduates.

The groups of Iowa and out-of-state community college transfers consisted of students from community colleges providing curricula specifically designed for transfer to other colleges. Variables such as college curricula and frequency of students who transferred from a particular type of college were not considered in this study, however such variables may influence the number of transfer students from community colleges enrolling at the baccalaureate degree granting institutions. The students who transferred from a community college to the Iowa independent colleges studied did not accumulate more hours upon graduation than those students began their post-secondary education at the independent college.

The student who transferred from a four-year college and graduated from one of the colleges selected for this study accumulated more hours prior to graduation than did the native students. At all four of the independent colleges, differences between these student groups existed at a level greater than what may be expected by chance. Therefore, the student who decided to transfer from another four-year college to one of those studied accumulated a significantly greater number of hours upon graduation. These additional hours completed by four-year transfers may have been a result of a change of mind or major by the student. This, in addition, to the earlier assumption that the community college transfer may have selected a route of study designed for transfer, may provide a partial explanation for the differences between these transfer groups. However, the degree which this was an influence was not examined in this study.

Hypothesis 2 of this study addressed the differences in the number of hours taken to graduate from an independent college in Iowa between students who transferred from an Iowa community college and those who transferred from a community college outside of Iowa.

Test performed on the groups identified in Hypothesis 2 failed to reject the null hypothesis; no difference existed between Iowa community college transfers and out-of-state community college transfers at any of the four selected independent colleges. Both the ANOVA test and the Scheffé testing failed to identify a difference existed in these groups in total hours completed at graduation. Less

than one hour separated the two groups at Colleges II, III and IV; College I had only 4.1 additional hours completed by out-of-state community college transfers.

Three of the four selected independent colleges in this study had community colleges within a 20 mile radius of their campuses. The fourth had a pilot campus located on nine community college campuses throughout the state. The research conducted in this study did not, however, indicate this had a significant influence when total hours completed at graduation were tested.

The difference in the hours taken to graduate from an independent college in Iowa between Iowa community college transfers and four-year college transfers were tested in Hypothesis III. The mean number of semester hours completed to graduate at all four colleges was greater for the four-year college transfer student than for the Iowa community college transfer; the ANOVA test failed to indicate a difference existed at Colleges I and III. Both the standard ANOVA and Scheffé analysis tests failed to reject that hypothesis. A difference did exist in the hours taken to complete graduation at Colleges II and IV. Using the ANOVA and Scheffé methods of analysis resulted in the rejection of hypothesis 3. A summary appears at the conclusion of Chapter IV.

The results of the one way ANOVA between the means test for the groups addressed in hypothesis 3 therefore suggested that the differences in articulation practices between other four-year college

transfers and Iowa community college transfers depended upon the independent college tested. Other variables not controlled for in this research might be of greater influence than the type of college from which the student transferred. Possible significant variables may include; major, number of hours transferred, academic preparation, degree of selectiveness at the independent college, and variety of options within majors at the independent colleges.

Hypothesis 4 examined differences in total hours completed at graduation between out-of-state community college students who transferred to independent colleges in Iowa and transfer students from other four-year colleges. No differences were found in the number of hours completed to graduate at Colleges I, II and III using both the ANOVA and Scheffé methods of testing. These two student groups did not differ in relation to their total accumulated hours upon graduation.

The same tests applied to College IV resulted in a rejection of hypothesis 4. A difference existed between these two transfer student groups. The out-of-state community college student completed significantly fewer hours in meeting graduation requirements at College IV than did the students who transferred from another four-year college. The mean number of hours for the out-of-state community college transfer at College IV was 131.2 semester hours, 3.2 more than the 128 semester hours required. The four-year college transfer student completed a mean 137.2 semester hours or 9.2 more than

required by the college for graduation, and 5 semester hours more than the out-of-state community college transfer at College IV. College IV was the only independent college studied in this research that did not have a larger number of four-year college transfers than the other two transfer categories.

The pattern established through this research indicated conclusively that students who transferred to the selected independent colleges in Iowa from other four-year colleges were affected by the decision to transfer. These students took significantly more hours to complete the requirements for graduation than did native students, Iowa community college transfer students or out-of-state community college students. Three of the tests for differences resulted in a rejection of the hypothesis that no difference existed between the groups involved using the standard ANOVA method of analysis, but these tests failed to reject the hypothesis when the Scheffé test was performed.

Although other variables influenced persistence of transfer students to independent colleges in Iowa, the student who chose to transfer from a four-year college to an independent college completed more hours at graduation than the native student. Students who transfer from a community college in Iowa or outside the state did not accumulate significantly more hours to graduate. This ANOVA difference was confirmed by the Scheffé post hoc comparison.

Summary of Conclusions

Following is a summary of the major conclusions: a) students who transferred from an Iowa community college to an independent four-year college in Iowa and completed, accumulated a comparable number of hours at graduation to native students, as measured by the total semester hours applied toward the degree; b) graduates who transferred from an out-of-state community college to an independent four-year college in Iowa and completed, accumulated total hours similar to native students as measured by semester hours applied toward the degree; c) students who transferred from other four-year colleges to an independent four-year college in Iowa completed a greater number of hours to graduate than native students; d) students who transferred from a community college outside of Iowa accumulated a similar amount of credit as to those students who transferred from a community college within the state of Iowa; e) differences existed at some independent colleges in the number of semester hours taken at the completion of a baccalaureate degree between Iowa community college transfer students and students who transferred from four-year colleges. These differences depended upon factors other than from what type of college the student transferred; and f) differences existed at some independent colleges in the number of hours taken at the completion of a baccalaureate degree between students who transferred from out-of-state community colleges and students who transferred from other four-year colleges. These

differences depended upon factors other than from what type of college the student transferred.

Recommendations for Future Research

This study provided a foundation for future knowledge about the relationships between independent colleges and the community colleges that transfer credits to them. As a part of the continuing effort to study the persistence of the community college transfer student, the findings indicated areas that would seem appropriate for future research.

The findings of hypothesis 1 indicated no differences existed between those students who transferred from Iowa community colleges to and students native to the colleges. The findings of hypothesis 2 also indicated that no differences existed in hours completed for the degree between native students and out-of-state community college transfers. Further studies should examine the articulation of Iowa community college students with independent colleges, specifically those with propinquity. These studies may provide further information about the influence of; the community college and independent four-year college, the staff's knowledge of curriculum, the frequency of transfer between colleges and the positive or negative working relationships between those staff members responsible for the transfer function.

Further studies could also compare community college and independent colleges in other states to determine if students were affected differently from what resulted in this study.

Community colleges have been concerned about courses within the baccalaureate major moving downward to the freshman and sophomore levels at four-year colleges. The result of this downward movement of upper division courses could result in hours being accepted but as electives, only, thus requiring more hours to graduates for the transfer. Hypothesis 1a and 1b indicated this had not effected the colleges studied in this research. Further studies should be conducted to determine if significant differences in hours completed to graduate from independent colleges in Iowa would be significantly effected if separated and tested by major. These studies could determine if completion of the baccalaureate degree was affected by the major the transfer student chose upon transfer. The findings of hypotheses 1 and 2 indicated in state and out-of-state community college transfers graduated similar to native students. Further studies should be conducted to determine if these groups also performed academically equal to the students native to the independent colleges in Iowa.

The analysis of variance tests performed in this study of community college students did not take into consideration what effect number of hours transferred had on degree attainment of these students. Students were classified as transfer students if they had

completed 30 or more semester hours at a college other than the one that awarded the baccalaureate degree. The category the student was placed in was determined by where the credits originated. Giddings (1985) concluded that the number of hours transferred by the community college student affected the degree attainment of these students at the three state universities in Iowa. Students who transferred after two years at the community college persisted more successfully than those who transferred after one year. Further studies could determine if the number of hours transferred affected degree attainment of the community college students at independent colleges in Iowa.

This research continued an effort in higher education to study the effects choosing to attend a community college by students had on the students ability to graduate. While few variances were found among transfers who completed the baccalaureate degree, non-completers were not considered. Future studies should further determine if the rate of completion was similar between the three groups tested in hypotheses 1a and 1b. Did the community college student from in-state community colleges and from out-of-state community colleges complete with the same degree of success as students native to the independent college?

Hypothesis 1c indicated students who transferred to independent college in Iowa from other four-year colleges and graduated completed more hours before graduation than did students native to the independent colleges. Ingram (1967) in a study of transfer students who

entered Drake University between the fall of 1961 and the fall of 1964 concluded that transfers from Iowa community colleges and other four-year college transfer students out-performed students who transferred from out-of-state community colleges. Further studies should be conducted which further determine if other four-year college transfer students perform equally when compared to native students. The differences in the conclusions resulting from hypothesis 1c of this study and the Ingram study might suggest the differences in performance between these two groups are in no way related to degree attainment of the same groups. In retrospect, performance measured student's abilities to complete while degree attainment of completers measured in hours required to complete showed the college's ability to articulate effectively and equally.

Throughout this study, the analysis of variance tests indicated students who transferred from other four-year colleges could expect to complete comparatively more hours than the other groups. The four-year college transfer experienced a disadvantage. The review of literature did not indicate a disadvantage was experienced by four-year college transfers at universities (Mann, 1963; Ingram, 1967; Hanson, 1968; and Giddings, 1985). Since College III of this study was a university offering a comparatively broader spectrum of majors further studies should be conducted to determine if the size of the transfer college and the major declared by the four-year transfer had a significant affect on hours completed by the four-year college transfer.

Hypothesis 2 indicated no difference existed in the number of hours taken to complete graduation requirements between out-of-state community college transfers and Iowa community college transfers at independent colleges. Further studies should be conducted by individual community colleges in the state to determine if differences exist between Iowa community colleges. Included in tests to measure the differences between total hours completed at graduation by students from individual Iowa community colleges should be an examination of the effect number of hours transferred had on total hours.

The review of literature in this study indicated when academic preparation of transfer groups compared to native groups were controlled, few differences existed in the degree attainment of community college transfer students when compared to native students. This study did not consider the degree which students completed high school or college courses that would have placed them in upper level college courses, thus reducing the number of hours required to complete. Further studies should determine the extent preparatory courses affect total hours completed at graduation.

Summary of Recommendations for Future Research

The following recommendations are a result of the research findings. Further research may provide answers to the questions identified as a result of the conclusions of this study. These studies should include: a) an examination of the articulation of

Iowa community college students with independent colleges, specifically those with propinquity; b) a study to determine if significant differences in hours completed to graduate from independent colleges would be affected by the major the transfer student chose; c) a study to determine if the number of hours transferred affected degree attainment at independent colleges; d) a study that included those students who transferred but did not complete to determine if completion was affected by transfer to independent colleges in Iowa; e) a study that included measurements of performance within these groups of transfers at independent college; f) a study to determine if the size and the number of majors offered at the independent college affected total hours at graduation; g) an examination of individual community colleges in Iowa to determine if differences exist between community colleges in degree attainment of transfers, specifically the nine satellite centers of College IV located on community college campuses; and h) an examination of the extent preparatory courses affected total hours completed at graduation from independent colleges in Iowa.

This research was a part of a continued effort to study the effects of transfer on degree attainment at higher education institutions. While few variances were found between community college students and native students at independent colleges, significant variances were found in the hours completed at graduation between students who transferred from other four-year colleges and both

natives and community college transfers. The number of hours completed at graduation by the student who transferred to an independent college in Iowa were comparatively more than the native students' and the community college students'. The statistical tests performed on the colleges separately and between all groups indicated that difference in hours completed toward degree attainment depended upon what independent college the transfer student chose. This research also found in performing two methods of analysis of variance tests that different methods of comparison produced different results.

This research combined with previous studies added to the continued effort to provide information about the transfer function in higher education. The findings of this research may be used to further the knowledge of those professionals who work with the transfer function and how transfer effects the degree attainment of students. The conclusions and recommendations in this study were provided as a basis for future studies of the transfer function in higher education.

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APPENDIX A--STATISTICAL INFORMATION ABOUT 1984 GRADUATES OF COLLEGE I

College I

Student information

Population Studied	113	
Population Sex (male)	50	
Population Sex (female)	63	
Majors - Math, Science	39	(34 nurses)
Business	38	
Other	36	
Graduation Requirement	124	

Graduates by category

College I	Mean	Median	Standard	Largest	Smallest	Range	Mode
Native	128.47	127	6.1	153.1	124	29.1	124
Iowa community college	136.5	131.4	15	178	124	54	124.7
Out-of- state community college	140.7	127.65	26	120	124	77	125-124
Four-year college	140.6	136	18.8	209	124	85	None

APPENDIX B--STATISTICAL INFORMATION ABOUT 1984 GRADUATES OF COLLEGE II

College II

Student information

Population Studied	240
Population Sex (male)	128
Population Sex (female)	112
Majors - Math, Science	58
Business	81
Other	101
Graduation Requirement	120

Graduates by category

College II	Mean	Median	Standard	Largest	Smallest	Range	Mode
Native	122	119.9	4.6	148.9	119.2	29.6	119.88
Iowa community college	121	119.9	3.1	131.2	119.2	12	119.88
Out-of- state community college	122.4	120.5	3.3	130.2	119.2	11	None
Four-year college	126.4	121.5	9.0	153.2	119.2	34	119.88 & 119.547

APPENDIX C--STATISTICAL INFORMATION ABOUT 1984 GRADUATES OF COLLEGE III

College III

Student information

Population Studied	734	(Pharmacy majors not included)
Population Sex (male)	339	
Population Sex (female)	395	
Majors - Math, Science	93	
Business	256	
Other	385	
Graduation Requirement	124	

Graduates by category

College III	Mean	Median	Standard	Largest	Smallest	Range	Mode
Native	128	125	6	158	121	37	124
Iowa community college	128.6	126.2	6.6	154	123.5	30.5	124
Out-of- state community college	129	126.5	7.1	152	123	29	124
Four-year college	129.3	126.3	8.1	120	120	5.5	124

APPENDIX D--STATISTICAL INFORMATION ABOUT 1984 GRADUATES OF COLLEGE IV

College IV

Student information

Population Studied	351
Population Sex (male)	169
Population Sex (female)	182
Majors - Math, Science	30
Business	148
Other	173
Graduation Requirement	128

Graduates by category

College IV	Mean	Median	Standard	Largest	Smallest	Range	Mode
Native	132.3	130	6.9	178.5	125	53	128
Iowa community college	130.8	129	4.9	152.6	122	30.6	128
Out-of- state community college	131.2	128.6	5.5	151	128	25	128
Four-year college	137.2	133.3	12.2	184	113	71	128

**APPENDIX E--INDEPENDENT COLLEGES IN IOWA THAT AWARD
A BACCALAUREATE DEGREE**

Iowa independent colleges

<u>College Name</u>	<u>City</u>	<u>Full & Part-Time Enrollment 1984</u>
Briar Cliff College	Sioux City	1,307
Buena Vista College	Storm Lake	1,714
Central College	Pella	1,582
Clarke College	Dubuque	861
Coe College	Cedar Rapids	1,310
Cornell College	Mount Vernon	408
Divine Word College	Epworth	83
Dordt College	Sioux Center	1,103
Drake University	Des Moines	3,965
Graceland College	Lamoni	993
Grandview College	Des Moines	1,323
Grinnell College	Grinnell	1,207
Iowa Wesleyan College	Mount Pleasant	652
Loras College	Dubuque	2,235
Luther College	Decorah	2,137
Maharishi International University	Fairfield	389
Marycrest College	Davenport	—
Morningside College	Sioux City	1,121
Mount Mercy College	Cedar Rapids	1,287
Mount St. Claire College	Clinton	366
Northwestern College	Orange City	900
St. Ambrose College	Davenport	2,234
Simpson College	Indianola	1,224
University of Dubuque	Dubuque	907
Upper Iowa University	Fayette	714
Vennard College	University Park	201
Wartburg College	Waverly	1,200
Westmar College	LeMars	487
William Penn College	Oskaloosa	472
Total = 29 Colleges	Full & Part-time students	32,328

APPENDIX F--IOWA COMMUNITY COLLEGES

Iowa community colleges

<u>College Name</u>	<u>City</u>	<u>Full & Part-time Enrollment 1984</u>
Clinton Community College	Clinton	1,015
Des Moines Area Community College	Ankeny	8,056
Ellsworth Community College	Iowa Falls	925
Hawkeye Institute of Technology	Waterloo	1,948
Iowa Central Community College	Fort Dodge	2,398
Iowa Lakes Community College	Estherville	1,687
Indian Hills Community College	Ottumwa	2,212
Iowa Western Community College	Council Bluffs	2,864
Kirkwood Community College	Cedar Rapids	6,340
Marshalltown Community College	Marshalltown	1,383
Muscatine Community College	Muscatine	878
North Iowa Area Community College	Mason City	3,638
Northeast Iowa Technical Institute	Calmar	1,015
Northwest Iowa Technical Institute	Sheldon	475
Scott Community College	Bettendorf	2,587
Southeastern Community College	W. Burlington, Keokuk	1,862
Southwestern Community College	Creston	676
Western Iowa Tech Community College	Sioux City	1,294
	Total Students	41,253

**APPENDIX G--LETTER TO CHIEF ENROLLMENT OFFICER AT SELECTED
INDEPENDENT COLLEGES**

In an effort to fulfill a partial requirement for my Ph.D. at Iowa State University I am doing a study that I believe will have positive implications for the relationship of the four-year and two-year colleges in Iowa. I have chosen four private institutions in the state to represent the senior (four-year) segment. Your college is one, and I am (will be) appreciative of your participation.

As the Dean of Student Services at Indian Hills Community College, I am extremely interested in the relationship with independent colleges and the articulation of community college credits with you. I see our graduates becoming more aware and interested in schools such as yours for the completion of their degree work.

I am anxious for these to be included in this study. The study will involve a sampling of students who are native to _____ as well as students who transfer from a community college to your college. You have my promise that I will take precautions to maintain confidentiality, both within the guidelines set by your institution and those set forth by the Privacy Act.

I will be calling you soon to discuss this study with you and your participation in the same. I plan to share the results of this study with all of the participants, and apply the information to strengthen the relationship between the community colleges and the private senior institutions toward ultimate benefit to the students.

Sincerely,

Ron Oswalt
Dean, Student Services

RO/smh

APPENDIX H--EXAMPLE TRANSCRIPT OF COLLEGE I

NAME	LAST	FIRST	MIDDLE	SOC. SEC. NO.
HOME ADDRESS				
BIRTHDATE	8 19 62	BIRTH PLACE	SEX M	
HIGH SCHOOL	LOCATION	YR GRAD.	ACT COMP.	
PARENTS				
NAME		ADDRESS		

STUDENT PERMANENT RECORD

Dept. Code	Course No.	COURSE TITLE	Hrs. All.	Hrs. Earn.	Grade	Grade Points
------------	------------	--------------	-----------	------------	-------	--------------

FALL 1981 04227

64 101	INTRO TO SOCIOLO	3.0	3.0	A	12.0
62 107	INTRO TO BUSINES	3.0	3.0	A	12.0
30 102	FRESHMAN ENGLISH	3.0	3.0	B	9.0
60 121	U S HISTORY TO 1	3.0	3.0	B	9.0
70 111	INTERMEDIATE ALG	3.0	3.0	C	6.0
		15.0	15.0	48.0	GPA 3.200

SP82

SOC 341	CULTURAL ANTHROP	3.0	3.0	A	12.0
HIST122	U.S. HISTORY FRO	3.0	3.0	A	12.0
ECON310	MARKETING	3.0	3.0	B	9.0
ENG 223	BUSINESS COMPOSI	3.0	3.0	C	6.0
MATH121	COLLEGE ALGEBRA	3.0	3.0	C	6.0
		15	15	45	GPA -->3.000

*** FA82

BSAD 101	ACCOUNTING I	3.0	3.0	A	12.0
BSAD 221	QUANT METHODS T	3.0	3.0	B	9.0
BSAD 339	LAW AND SOCIETY	3.0	3.0	B	9.0
CPSC 155	INTRO. TO COMPUT	3.0	3.0	D	3.0

12.0 12.0 12.0 33.0 GPA: 2.750

English Proficiency Met - Spring, 1983

SPB3

BSAD 102	PRINCIPLES OF AC	3.0	3.0	A	12.0
BSAD 222	QUANTATIVE METHD	3.0	3.0	B	9.0
BSAD 340	BUSINESS LAW	3.0	3.0	C	6.0
PHIL 301	CONTEMPORARY MOR	3.0	3.0	A	12.0
SOC 346	CUL. AND PER.	3.0	3.0	A	12.0
		15.0	15.0	15.0	51.0 GPA 3.40

MA83

MATH 151	ELEM. STAT.	3.0	3.0	A	12.0
		3.0	3.0	3.0	12.0 GPA 4.00

Buena Vista College
Storm Lake, Ia. - '80-'81 30 sem. hrs.

FA83

BSAD 201	MANAG. ACCOUNT.	3.0	3.0	A	12.0
BSAD 310	MANAGEMENT	3.0	3.0	B	9.0
BSAD 412	FINANCE	3.0	3.0	A	12.0
*DRAKE	CROSS ENROLL.	4.0	-4.0	-B	-4.0
ENGL 324	TECH. WRITING	3.0	3.0	B	9.0
		16.0	16.0	16.0	GPA 2.87
*Acct 053	303 Interm Acctg	4.0	4.0	4.0	3.50

SPB4

BSAD 399	PRACTICUM INTERN	3.0	3.0	A	12.0
BSAD 450	SENIOR SEMINAR	3.0	3.0	B	9.0
*DRAKE	CROSS ENROLL	4.0	4.0	C	8.0
ECON 315	MONEY & BANKING	3.0	3.0	A	12.0
PSYC 310	SOCIAL PSYCHOLOG	3.0	3.0	P	
SPCH 107	THEORY OF COMM.	3.0	3.0	A	12.0
		19.0	16.0	19.0	53.0 GPA 3.31
*Acct 054	801 Intermediate Acct.				

MA84

BSAD 410	COMPLEX ORGANIZA	3.0	3.0	A	12.0
		3.0	3.0	3.0	12.0 GPA 4.00

Good standing is
Certified unless
otherwise indicated.

Department Number	Course Number
10 Humanities	64 Sociology
12 Social Studies	65 Geography
14 Natural Science	66 Phys. Educ.
20 Art	68 Computer Sci.
24 Arts App	70 Mathematics
30 English	71 Physics
31 Speech - Drama	72 Engineering
41 French	73 Biology
42 German	74 Chemistry
43 Spanish	75 General Sci.
50 Religion	76 Phys. Science
53 Philosophy	77 Nursing
60 History	80 Education
61 Economics	85 Psychology
62 Business Adm.	90 Music
63 Political Sci.	91 Communication

Grade	Interpretation	Gr. Pts. per Sem. Hr.
-------	----------------	-----------------------

A	Excellent	4
B	Above Average	3
C	Average	2
D	Below	1
I	Incomplete	0
P	Passing	0
R	No credit given	0
X	Cancelled	0
Z	Audit	0
-	Superseded by later course	

Assoc. in Arts Degree	
Three Year Cert	
Bachelor of Science Degree	
Bachelor of Arts Degree	5/4/85

Memoranda

LAST		FIRST		MIDDLE		SOC. SEC. NO.	
HOME ADDRESS							
(ZIP)							
BIRTHDATE		BIRTH PLACE		SEX			
HIGH SCHOOL		LOCATION		YR. GRAD.		ACT COMP.	
PARENTS							
NAME				ADDRESS			

STUDENT PERMANENT RECORD

Dept. Code	Course No.	COURSE TITLE	Hrs. Att.	Hrs. Earn.	Grade	Grade Points
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- Page 2 -

FA84

BIOL 101 GENERAL BIOLOGY 4.0 4.0 P
 BSAD 301 TAX ACCOUNTING 3.0 3.0 A 12.0
 7.0 3.0 7.0 12.0 GPA 4.00

Drake University
 Des Moines, Ia. F'84 3 Sem. Hrs.

Trans. Hrs..... 33 @ 2.88
 Grand View Hrs..... 101 @ 3.28
 Total Earned Hrs... 134 @ 3.17

Bachelor of Arts in Business Administration
 Degree Conferred May 4, 1985. Degree
 requirements completed December 20, 1984.

Good standing is
 Certified unless
 otherwise indicated.

Department Number	
10 Humanities	64 Sociology
12 Social Studies	65 Geography
14 Natural Science	66 Phys. Educ.
20 Art	68 Computer Sci.
24 Arts App.	70 Mathematics
30 English	71 Physics
31 Speech Drama	72 Engineering
41 French	73 Biology
42 German	74 Chemistry
43 Spanish	75 General Sci.
50 Religion	76 Phys. Science
53 Philosophy	77 Nursing
59 History	80 Education
61 Economics	85 Psychology
67 Business Adm.	90 Music
63 Political Sci.	91 Communication

Grade	Interpretation	Gr. Pts. per Sem. Hr.
A	Excellent	4
B	Above Average	3
C	Average	2
D	Below	1
I	Incomplete	0
P	Passing	0
R	No credit given	0
X	Cancelled	0
Z	Audit	0
-	Superseded by later course	

Assoc. in Arts Degree	
Three Year Unit	
Bachelor of Science Degree	
Bachelor of Arts Degree	

Memoranda

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APPENDIX I--EXAMPLE TRANSCRIPT OF COLLEGE II

PERMANENT RECORD CARD
OFFICE OF THE REGISTRAR

	COURSE TITLE	DIVISION	COURSE	COURSE CREDIT	MARK	
	FALL PERIOD 1980-91					
1	BELIEF & UNBELIEF	18	015	1.0	B	
2	INTRO-OLD TESTAMENT	18	105	1.0	B	
3	INTRO TO POL SCIENCE	22	015	1.0	C	
4	INTRO-MODERN CULTURE	31	045	1.0	B	
5						
6	TOTALS	CA	GPCA	CE	GPS	GPA
7	PERIOD	4.0	4.0	4.0	11.0	2.750
8	CUM	4.0	4.0	4.0	11.0	2.750

11		SPRING TERM 80-81				
12	INTRO-NEW TESTAMENT	18	115	1.0	H	
13	FUND PUB SPEAKING	25	025	1.0	B	
14	INTRO TO EDUCATION	27	205	1.0	A	
15	NATURE OF SCIENCE	31	035	1.0	A	
16	THE CATHOLIC NOVEL	52	588	1.0	S	
17						
18	TOTALS	CA	GPCA	CE	GPB	GPA
19	PERIOD	5.00	4.00	5.00	14.00	3.500
20	CUM	9.00	8.00	9.00	25.00	3.125

24				FALL TERM	R1-R2	
25	HIST WEST CIVIL'N I	13	115	1.00	B	
26	IND DIFFERENCES	23	315	1.00	C	
27	PRIN OF TEACHING	27	395	1.00	A	
28	4T MERCY-CONT WORK IS	53	272	1.00	A	
29						
30	TOTALS	CA	GPCA	CE	GPS	GPA
31	PERIOD	4.00	4.00	4.00	13.00	3.250
32	CUM	13.00	12.00	13.00	38.00	3.166

	COURSE TITLE	DIVISION	COURSE	Course Credit	GRADE	
37						
			SPRING TERM 81-82			
38	EDUC PSYCHOLOGY	23	435	1.00	A	
39	HIST WEST CIVIL'N II	13	125	1.00	C	
40	MYTH AND RITUAL	18	335	1.00	A	
41	SP METH SEC SOC STDY	27	465	1.00	A	
42	FIELD EXPERIENCE	27	010	0.50	S	
43	EASTERN MYSTICISM	52	632	1.00	A	
44						
45	TOTALS	CA	GPCA	CE	GPS	GPA
46	PERIOD	5.50	5.00	5.50	18.00	3.600
47	CUM	18.50	17.00	18.50	56.00	3.294

		SUMMFR TERM 1982				
50	HIST U.S. TO 1865	13	315	1.00	B	
51	HIST U.S. SINCE 1865	13	325	1.00	C	
52						
53	TOTALS	CA	GPCA	CE	GPS	GPA
54	PERIOD	2.00	2.00	2.00	5.00	2.500
55	CUM	20.50	19.00	20.50	61.00	3.210

58		FALL TERM 82-83				
59	THE REFORMATION	13	415	1.00	B	
60	WORLD RELIGIONS	18	035	1.00	B	
61	MODERN ASTRONOMY	21	14*	1.00	B	
62	EXPER PSYCH-COGNITIO	23	425	1.00	C	
63						
64	TOTALS	CA	GPCA	CE	GPS	GPA
65	PERIOD	4.90	4.00	4.00	21.00	2.750
66	CUM	24.50	23.00	24.50	72.00	3.130

DEGREE DATE COLLEGE NAME

AREA OF CONCENTRATION

20

Good standing is certified otherwise Value added seal affixed and signed

AT-1

PERMANENT RECORD CARD
OFFICE OF THE REGISTRAR

BIRTHPLACE			
BIRTH DATE	SEX	RACE	HAIR

HIGH SCHOOL NAME & NUMBER		
HIGH SCHOOL LOCATION		
YR. GRAD.	HS GPA	CLASS RANK

PARENT/2ND LAST NAME
STREET ADDRESS
CITY & STATE OR COUNTRY

PAGE 2 OF 2

B.A.

COURSE TITLE	GR-NO	COURSE	COURSE CREDIT	MARK	COURSE TITLE	DIVISION	COURSE	COURSE CREDIT	MARK
SPRING TERM 82-83					FALL TERM 1983-84				
1	INTRO TO MATHEMATICS	14	105	1.00	C	37			
2	AMERICAN CATHOLICISM	13	355	1.00	C	38	HUMAN REL-CLASSROOM	27	385 1.00 A
3	SOVIET RUSSIA	13	485	1.00	C	39	STUDENT TCHNG SEC	27	585 3.00 S
4	SEC SCHL CURRICULUM	27	405	1.00	B	40			
5					41	TOTALS	CA	GPCA	CE GPS GPA
6	TOTALS	CA	GPCA	CE	GPS	GPA	42	PERIOD	4.00 1.00 4.00 4.00 4.000
7	PERIOD	4.00	4.00	4.00	9.00	2.250	43	CUM	37.00 30.00 37.00 90.00 3.000
8	CUM	28.50	27.00	28.50	81.00	3.000	44		
9					45				
10					46				
11	SUMMER TERM 1983				47				
12	IND STUDY-RELIGION	18	815	1.00	C	48			
13	IND STUDY-RELIGION	18	825	1.00	B	49			
14					50	SPRING TERM 83-84			
15	TOTALS	CA	GPCA	CE	GPS	GPA	51	INT SECURITY VS CIV	52 728 1.00 A
16	PERIOD	2.00	2.00	2.00	5.00	2.500	52	MOD EUROPEAN HIST	13 455 1.00 A
17	CUM	30.50	29.00	30.50	86.00	2.965	53	SEN-AMERICAN HIST II	13 735 1.00 A
18					54		54	HISTORY & ISSUES	23 545 1.00 A
19					55				
20					56	TOTALS	CA	GPCA	CE GPS GPA
21	TRANSFER WORK ACCEPTED FROM KIRKWOOD				57	PERIOD	4.00	4.00	4.00 16.00 4.000
22	COMMUNITY COLLEGE, CEDAR RAPIDS, IA				58	CUM	41.00	34.00	41.00 106.00 3.117
23	1979			1.6	59	Dean's List 5/84			
24					60				
25	TRANSFER WORK ACCEPTED FROM MOUNT				61				
26	MERCY COLLEGE, CEDAR RAPIDS, IA				62				
27	SUMMER 1983			0.9	63				
28					64				
29	TOTALS	CA	GPCA	CE	GPS	GPA	65		
30	CUM	33.00	29.00	33.00	86.00	2.965	66		
31					67				
32					68				
33					69				
34					70				
					71				
					72				

5/20/84 112/239
DEGREE DATE COLLEGE RANK
History and Religion
AREA OF CONCENTRATION

MINOR: Psychology

Good standing is certified unless indicated otherwise. Valid only if seal affixed and signed.

APPENDIX J--EXAMPLE TRANSCRIPT OF COLLEGE III

APPENDIX K--EXAMPLE TRANSCRIPT OF COLLEGE IV

Regulate Record: Graduation Date: April, 1984 Degree: Bachelor of Arts Rank:

Major(s): Finance and Banking Honors:

IOWA WESTERN COMMUNITY COLLEGE, Council Bluffs
Fall 1971 Iowa

BLANKET CREDIT			28	Cr
200	051	Comm I	2	B
200	072	Tech Math II	3.3	B
Winter 1972				
200	052	Comm II	2	B
200	073	Tech Math III	3.3	B
200	081	Tech Science I	2	B
Spring 1972				
200	053	Comm III	2	B
200	074	Tech Math IV	3.3	A
200	082	Tech Sci II Elec	2	B
Summer 1972				
200	061	The Am Economy	2	A
Fall 1972				
200	067	Personal Finance	2	A
Winter 1973				
034	115	Western Civ I	2	B
200	065	Psych Human Rel	2	B
Fall 1980				
031	231	Prin of Econ I	2	C
Winter 1980-1981				
012	121	Prin of Acct I	2	C
031	232	Prin of Econ II	2	C
Spring 1981				
012	122	Prin of Acct II	2	B
031	233	Prn of Econ III	2	C
Summer 1981				
012	123	Prn of Acct III	2	A

DEGREE, Elect. Tech.-Assoc in Appl Sci
Febr. 23, 1973

*Total Hours Corrected to reflect transfer
from quarter to semester hours credit

Cum-GPA	Earned Cr	Att Cr	Grade Points
3.03	68.00	40.00	121.30

TERM 2 2nd Sem 1981-1982
Econ 350 Statistics 3 B

TERM 3 2nd Sem 1981-1982
Acct 305 Cost Accounting 4 C
Phil 110 Ethics 3 A

TERM 4 2nd Sem 1981-1982
Acctg 400 Tax Accounting 3 A

TERM 5 Summer 1982
Bus 370 Business Finance 3 B

June 17, 1982
MATH PROFICIENCY CERTIFIED

TERM 6 Summer 1982
Bus 330 Marketing 3 A
9-15-1982

WRITTEN COMM PROICIENCY CERTIFIED
1st Sem 1982-1983
TERM 1
Bus 375 Management of Financial 3 C
Institutions

1st Sem 1982-1983
TERM 2
Bus 320 Risk Management & Insurance 3
Cum -GPA Earned Cr Att Cr Grade Points
3.05 93.00 65.00 198.30

CONTINUED ON NEXT PAGE

Transcript not valid without seal Honorable dismissal unless otherwise noted. Marking System - A (Excellent); B (Good); C (Average); D (Poor); F (Failed), Grade Point System-4 Point Scale: A-4; B-3; C-2; D-1; F-0; P-Passed; H-Honors.

Registrar

Date of Transcript

Major(s):..... **Honors:**.....

TERM 3 [REDACTED]
Bus 475 Portfolio Mgmt & Investments 3 B

TERM 4
Bus 470 Finance Cases 3 B
2nd Sem 1982-1983

TERM	5			
Econ	420	Money and Credit.	3	B
Drama	110	Intro to the Theatre	3	B

TERM	1			
ComSci	101	Intro to Computer Science	3	A
Bus	360	Management	3	A

TERM	1	Week-Eng	-	
Media	371	Organizational Communu.	3	A

TERM 2
CompSci 210 Cobol 3 B

TERM	3			
Math	180	Quantitative Methods	4	B
Rel	206	Science, Technology & Socie	3	B

TERM	4		
Psych	280	Psychology of Adjustment	3 C

3.120	130.00	102.00	318.30
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Registrar.....

Date of Transcript.....